# THE MARINE RECORD

ESTABLISHED 1878

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## INSURANCE RATES FOR 1896.

The lake marine underwriters have given out the following as their rates for the season of 1896. On all but the highest classes and valuations, the rates are an advance over those of last year:

IRON AND STEEL TONNAGE.

| Class | Rig | Valuation | Per Cent Premium |
|---|---|---|---|
| A 1 | Steam | All values | 3½ |
| A 1½ | " | " " | 4 |
| A 1 | Sail | " " | 4½ |

WOODEN TONNAGE.

| | | | |
|---|---|---|---|
| A 1 | Steam | $100,000 and over | 4¼ |
| A 1 | " | $60,000 and over | 4½ |
| A 1 | " | $40,000 to $60,000 | 4¾ |
| A 1 | " | $40,000 and under | 5 |
| A 1½ | " | $60,000 and over | 5 |
| A 1½ | " | $40,000 to $60,000 | 5¼ |
| A 1½ | " | $40,000 and under | 5½ |
| A 1 | Sail | $30,000 and over | 5½ |
| A 1 | " | Under $30,000 | 6½ |
| A 1½ | " | $30,000 and over | 6 |
| A 1½ | " | Under $30,000 | 7 |

On total loss and general average policies, including collision, on the foregoing, a reduction of 20 per cent is allowed.

| | | | |
|---|---|---|---|
| A 2 | Steam | $50,000 to $75 000 | 7 |
| A 2 | " | $25,000 to $50 000 | 7¾ |
| A 2 | " | $15,000 to $25,000 | 8¾ |
| A 2 | " | $10,000 to $15,000 | 9¾ |
| A 2 | " | Under $10,000 | 13 |
| A 2½ | " | $25,000 to $50 000 | 10½ |
| A 2½ | " | $15,000 to $25 000 | 11 |
| A 2½ | " | $10,000 to $15,000 | 12 |
| A 2½ | " | Under $10,000 | 14 |
| B 1 | " | $25 000 to $50,000 | 11 |
| B 1 | " | $15 000 to $25,000 | 12 |
| B 1 | " | $10,000 to $15 000 | 13 |
| B 1 | " | Under $10,000 | 17 |
| A 2 | Sail | $25,000 to $50,000 | 9½ |
| A 2 | " | $15,000 to $25,000 | 10 |
| A 2 | " | $10,000 to $15,000 | 12 |
| A 2 | " | Under $10 000 | 14½ |
| A 2½ | " | $25,000 to $50 000 | 10½ |
| A 2½ | " | $15 000 to $25,000 | 12 |
| A 2½ | " | $10,000 to $15 000 | 13½ |
| A 2½ | " | Under $10,000 | 16 |
| B 1 | " | $25 000 to $50,000 | 12 |
| B 1 | " | $15 000 to $25,000 | 14½ |
| B 1 | " | $10,000 to $15,000 | 16 |
| B 1 | " | Under $10 000 | 18 |

Rates on tugs remain unchanged.

The seven-eighths collision clause subject to $500 deductable average.

Partial loss subject to one-half of one per cent. deductable average.

## VISIBLE SUPPLY OF GRAIN.

As compiled for THE MARINE RECORD by George F. Stone, Secretary Chicago Board of Trade, March 28, 1896:

| CITIES WHERE STORED. | WHEAT. Bushels. | CORN. Bushels. | OATS. Bushels. | RYE. Bushels. | BARLEY Bushels. |
|---|---|---|---|---|---|
| Albany | ..... | 12.000 | 35 000 | ..... | ..... |
| Baltimore | 117.000 | 678 000 | 103,000 | 83.000 | ..... |
| Boston | 197 000 | 44 000 | 26 000 | ..... | ..... |
| Buffalo | 1,222.000 | 85,000 | 27,000 | 199.000 | 415,000 |
| " afloat | 65,000 | ..... | 163,000 | ..... | ..... |
| Chicago | 18 433 000 | 6 030 000 | 1.714 000 | 438,000 | 16.000 |
| " afloat | 716,000 | 6,169,000 | 1,123,000 | ..... | ..... |
| Cincinnati | 11,000 | 2 000 | 21.000 | 2 000 | 42 000 |
| Detroit | 264.000 | 11 000 | 10.000 | 13,000 | 10,000 |
| " afloat | ..... | ..... | ..... | ..... | ..... |
| Duluth and Superior | 13,452.000 | 140,000 | 1,094 000 | 205 000 | 274,000 |
| " " afloat | 512 000 | ..... | ..... | ..... | ..... |
| Indianapolis | 75 000 | 34 000 | ..... | ..... | ..... |
| Kansas City | 1.237,000 | 2,000 | 68,000 | 26.000 | ..... |
| Milwaukee | 419 000 | 1,000 | 17,000 | 261 000 | 35,000 |
| " afloat | 176,000 | ..... | 280 000 | ..... | ..... |
| Minneapolis | 19 305 000 | 60 000 | 771,000 | 118.000 | 181,000 |
| Montreal | 895 000 | 113,000 | 381 000 | 6 000 | 62,000 |
| New York | 1.824.000 | 200 000 | 1,545.000 | 5.000 | 64.000 |
| " afloat | 104 000 | ..... | ..... | ..... | 10,000 |
| Oswego | ..... | ..... | ..... | ..... | 36 000 |
| Peoria | 150 000 | 167 000 | 381 000 | 5 000 | ..... |
| Philadelphia | 138,000 | 145 000 | 118 000 | ..... | ..... |
| St. Louis | 1,183 000 | 1.129 000 | 464 000 | 4 000 | ..... |
| " afloat | ..... | 217,000 | ..... | ..... | ..... |
| Toledo | 645.000 | 905,000 | 58,000 | 123,000 | ..... |
| " afloat | ..... | ..... | ..... | ..... | ..... |
| Toronto | 33,000 | ..... | 100.000 | ..... | 48.000 |
| On Canal | ..... | 8.000 | 12 000 | ..... | ..... |
| On Lakes | ..... | ..... | ..... | ..... | ..... |
| On Mississippi | ..... | 214,000 | 15 000 | ..... | ..... |
| Grand Total | 61.048.000 | 16 366,000 | 8.526,000 | 1,488 000 | 1,193,000 |
| Corresponding date 1895 | 74,308,000 | 13.407,000 | 6.185 000 | 267,000 | 787,000 |

THE RECORD is pained to announce the sudden death of Mr. George Williamson, senior member of the well-known firm of Williamson Bros., manufacturers of steam steerers and hoisting engines. Mr. Williamson died of heart failure last Thursday after two weeks' illness with la grippe. He was sixty-seven years of age, and the eldest of the three brothers who organized this firm thirty years ago. The business will be continued by his two brothers, one of whom, Mr. W. C. Williamson, recently made a trip to the Great Lakes in the interest of the firm, which has contracts to supply steam steerers to most of the boats now building on the lakes.

## THE ICE AT THE STRAITS.

*By Telegraph to the Record:*

MACKINAW CITY, April 2.

The wind blew furiously Tuesday night, with rain and mild weather since. The ice has begun to weaken, and it is now evident that navigation will open not later than April 15, and with heavy westerly winds may open earlier.

MRS. L. STIMPSON,
Marine Reporter.

## NOTICE TO MARINERS.

GRASSY ISLAND SOUTH CHANNEL RANGE FRONT LIGHT-STATION.

Notice is given that, on or about April 1, 1896, a fixed white lens-lantern light will be established in the structure recently erected on the west side of the main channel of the Detroit River, on Grassy Island fishery, about 1,300 feet due south from the present Grassy Island light.

The focal plane of the light will be 25 feet above the mean level of the river. The light will illuminate 90° of the horizon lying between N. 62° 30′ W. (NW. by W. ½ W.) and N. 27° 30′ E. (NNE. ½ E.) (bearings from a vessel), or 62° 30′ to the eastward and 27° 30′ to the westward of the range line.

The light will be shown from an octagonal lantern, with white roof, surmounting a white, square pyramidal tower on a low foundation.

With Grassy Island light as a rear light, this light will mark a range line for running the main channel of the Detroit River fram the Grosse Isle North Channel Range line to the Mamajuda Range line. The point of intersection with the Grosse Isle North channel range line is east of Mamajuda Range rear light and about 350 feet to the eastward of the 18 foot contour on the west side of the channel. The point of intersection with the Mamajuda Range line is a little more than ⅞ mile to northward of the Mamajuda Range front light.

GENESEE LIGHT-STATION.

The light tower at Genesee light-station on the west pier at the entrance to Charlotte Harbor, Lake Ontario, will be moved 350 feet northerly to a point on the pier about 30 feet from its outer end, and the fog signal building will be moved about 850 feet to a point just to the southward of the tower. On the opening of navigation, 1896, the light will be displayed and the fog signal sounded from the structures in their new positions without charge.

The report of the Lighthouse Board mentions, among other items, that 12 gas lighted buoys were in service during the year ended June 30, 1895. Since that time a gas buoy has been placed in service at Erie, Pa., and others in New York Harbor. The Pintsch gas buoy, which is made by the Safety Car Heating and Lighting Co., New York, is the type used, and is the only kind practicable for this service. These buoys are in high favor with the government engineers and the Lighthouse Board, on the score of economy and reliability, and their number is found to increase rapidly on the Great Lakes, where in many localities circumstances render Pintsch gas buoys the very best light that can be obtained.

## AVAILABLE DEPTH OF WATER.

*To the Editor of The Marine Record:*

The best I can do, in replying to your request for my views as to the probable maximum draft for vessels trading to Lake Superior and to Lake Michigan, is to state what our official records show in relation to the stage of water that has prevailed on Lakes Huron and Michigan from last October to the present time, and then make a "guess" as to what may follow; for I must disclaim any gift of prophecy.

The daily readings of our water gauges at Sand Beach Harbor of Refuge (Lake Huron) and at Grand Haven (Lake Michigan) show the mean monthly level of water in those lakes, during the past six months, to have been as follows:

1.96 feet below zero of Sand Beach Gauge for October, 1895
2.35 " " " " " " " " November, "
2.59 " " " " " " " " December, "
2.59 " " " " " " " " January, 1896
2.40 " " " " " " " " February, "

The record for the present month is, of course, incomplete, but up to the 21st inst. it shows a mean of 2.47 feet, or 7-100 of a foot less than the mean for February; it is not improbable that the mean for the whole month may be substantially the same as for February. The records for all past years invariably show a rising stage of water during the spring months, but last year's rise during April and May was only a little over three inches, and I see no good reason for assuming that it will be greater this year.

With this statement you can probably make as good a guess as I can, respecting the stage that may be found on Lakes Michigan and Huron at the opening of this season's navigation; but I see no good reason to suppose that the available depth for harbors on the two lakes to which I have referred will be materially greater than at the close of last season's navigation.

I have no authentic data concerning the existing or probable condition in the St. Mary's River, or at Lake Superior ports.

In connection with this general subject, I enclose you a blue print which indicates the yearly fluctuations since 1838 in the mean monthly levels of Lakes Michigan and Huron, as obtained from authentic records; among the most interesting features to be observed at this time are (1) how nearly last year's stage conforms with those of 1847 and 1848, and (2) the marked changes during the period that intervened before any work was done towards the establishment of the deep water channel from the head of the lakes to Buffalo. Very respectfully,

G. J. LYDECKER,
Lieut. Col. of Engineers.

## NEWLY ENROLLED TONNAGE.

Following is a list of lake vessels to which official numbers and signal letters have been assigned by the Commissioner of Navigation, for the week ended March 21:

| Official No. | Rig. | Name. | TONNAGE. Gross. | Net. | Home Port. | Where Built |
|---|---|---|---|---|---|---|
| 121,015 | St. s. | F Rockefel'r | 2,759.86 | 2,013.55 | Bufialo | Buffalo |
| 81,535 | St. s. | W. D. Rees | 3,760.29 | 2,992 33 | Cleveland | Cleveland |
| 53,284 | Bge. | 137 | 2 480.87 | 2,367.51 | Buffalo | Superior |

## LAUNCH OF THE IOWA.

The Wm. Cramp & Sons Ship and Engine Building Co. launched Saturday, at their yard at Philadelphia, the fourth of the new first-class battleships, called the Iowa. She is 360 x 72 x 24 feet, with 11,410 tons displacement. She will be driven by twin-screw engines, and her speed is estimated at 16 knots. Her contract price, hull and machinery, is $3,010,000.

## IN GENERAL.

The ice at the Sault is still reported firm.

Uhrig & Son are rebuilding their canal street dock, Milwaukee, which, was burned last fall.

A bill has been introduced in the House (6931) to transfer the Life-Saving Service from the Treasury to the Navy Department.

The Northern Mine Workers' Union is attempting to secure 8-hour shifts this season at mines where this rule is not already in force.

It is announced that Capt. Wm. Downs will operate the steamer Skater in the passenger and package freight trade between Cleveland and Buffalo, stopping at intermediate ports.

It is reported that the Michigan Central will build its long-talked-of extension from Gladwin, on the Mackinaw division, to Manistee. They are said to be looking for dockage at that port.

Michigan people are having a great deal of fun imagining that a big windrow of ice off Port Sanilac is an iceberg. It is an immense affair as it is, being over 600 feet long, 250 feet broad, and 80 feet high.

The sundry civil bill appropriates $2,000 for printing charts of the Great Lakes, and $25,000 to be used for correcting the same, to be available till expended; also $500,000 for continuing work on the 20-foot channel.

Gen. Pass. Agent A. A. Schantz, of the D. & C. Line, has now thirty-two fine carrier pigeons to be used by the boats of the line for sending messages to the general manager when communication by other means is impossible.

The sundry civil bill provides for the following lights and signals: Fog signal on Galloo Island, Lake Ontario, $5,700; Portage Lake and River lights, $10,000; Big Sable fog signal, $5,000; Devil's Island light station, $4,000.

Pickands Mather & Co., are building at Ashtabula 100 fueling buckets for their scow at Erie. The buckets measure five feet each way and will hold three tons. The Erie scow will be taken to Ashtabula to be lengthened.

The Ohio assembly has passed the naval reserve bill. Ohio gets about $7,000 of the national fund. The legislature did not appropriate any additional money. The reserves will be considered by the State as a part of the Ohio National Guard.

W. H. Gatfield has completed the details of the sale of his share of the Mullen & Gatfield dock at Amherstburg to the Cuddy-Mullen Coal Co., which will enlarge the dock cousiderably and expects to increase its trade in proportion to its improved facilities.

Congressman Burton has introduced a joint resolution making the $10,000 heretofore appropriated for a lighthouse on Squaw Point, Little Bay de Noquette, immediately available for a lighthouse on Saunders' Point, opposite Squaw Point.

The Grand Trunk has closed a five years' contract with Capt. E. G. Crosby to operate the Nyack between Grand Haven and Milwaukee. The Nyack will continue to look after Muskegon traffic as well. The Wisconsin and City of Milwaukee are on the market.

The Northern Line's immense passenger boats will hereafter coal just above the Soo canal. This is made necessary by the fact that the water in the canal will be a foot lower than last year, so that with the usual amount of ballast aboard when coming up the vessels cannot get through the canal. A dock will have to be built to accommodate the vessels by the Cuddy-Mullen Co. which has a contract to supply the Northern Line with 250,000 tons of coal at Cleveland and elsewhere.

The British & Foreign Insurance Co., has announced the following rates for this season, they being 50 per cent higher than last year: All A1 steamers value $75,000 and over, 22½ cents for season without limit averages; all A1 steamers valued over $50,000 and under $75,000 and all A1 tows over $50,000 valuation, 30 cents for season, without limit averages; all A2 steam and sail vessels of all values and all A1 steam or sail valued less than $50,000 take the 60-cent rate, with 10 per cent added for waiving of average.

## BOOM STYLE MARINE LEG.

(SEE PAGE SIX.)

We present on this page an illustration of what is known as the boom style marine leg for waterside elevators. This leg is raised and lowered into the ship by means of automatic power winches. It is usually arranged to deliver the grain into a hopper scale weighing on an average of 200 bushels a minute for rapid work, and from this hopper scale it is delivered into an inside leg, which delivers it into the elevator proper.

This style of leg, while not having the capacity of a slant leg, is somewhat cheaper, and has some advantages over that style of leg. The construction of a house and the class of work it has to do determine the style of leg to be erected.

Nine-tenths of the elevators in Chicago are using this style of leg. It is also iu use at Benton Harbor, Mich., and in the new elevator recently finished at Port Huron, Mich. Where a leg of very large capacity is desired the slanting style rather than the boom style is used, but because of its convenience of adjustment to large or small craft, the boom style is in general use. It is made by the Webster Manufacturing Co., Chicago.

## VESSEL TRANSFERS.

The transfer papers have been recorded at Sandusky on the sale of the steamer Maud Preston, by Capt. George McCullagh of Detroit, to the Port Clinton Fish Co., taking the little steamer Trio in part payment.

Capt. Alex R. Sinclair, of Alex R. Sinclair & Co., vessel and insurance agents at Duluth, has bought an additional quarter interest in the Langell and Orenac, making him a half owner.

James McBrier of Erie, and others have bought the iron steamer Emily P. Weed, from Hollister Bros., of Buffalo, the consideration being stated as $150,000.

Connelly Bros., of Buffalo, have sold the barge Tailor to Capt. Robert Flood for $1,300. He will probably sail her.

Capt. John Stone has sold to Capt. Theodore Marchard the schooner John Jewett for $1,200.

Penoyer Brothers, of Au Sable, have bought the steamer Leuty and consorts Bottsford and Jackson from G. K. Jackson of Bay City for use in their Lake Superior lumber trade, paying in part with the steamer Nellie Torrent. The Celtic, of the Leuty tow, was not sold.

Capt. Charles Thompson has bought the old schooner Atmosphere, and she and the John Wesley will tow behind the Brockway.

William Williams, Samuel Gibson, Charles McCabe, and John Helmert, comprising the new tug company which is to be found at Marquette, have bought the Chicago tug Calumet, for $1,500.

The Delta Lumber Co. has just purchased the tug Maxwell A., of Alpena, and will use her for raft towing on the Detroit River and Lake St. Clair.

## TRADE AND INDUSTRIAL NOTES.

Bartlett & Co., of Saginaw. have cast a 34,000-pound bed plate for an engine building at Wheeler & Co.'s yard. The engine will be placed in the Rockefeller steamer which the firm is building. This is the heaviest bed plate ever cast in the Saginaw Valley.

The Marine Engineer, London, in connection with an illustrated description of the engines and boilers of the American liners St. Paul and St. Louis, built at the Wm. Cramp & Sons Ship and Engine Building Co.'s yard, says that "for workmanship, massiveness, and ingenuity of arrangement, they are equal to anything turned out by the leading firms of Great Britain."

L. Black & Co., manufacturers and importers of optical goods, Detroit, displayed last week a beautiful marine "window," of marine glasses, compasses, barometers, etc., with pictures of many of the lake vessels and dock machines, draped with flags. The effect was very fine and so far as show windows were concerned was the chief attraction in Detroit. Among the pictures shown were a number of supplements and proofs of illustrations that have appeared with the MARINE RECORD. Black & Co. make a specialty of marine optical work and are prepared to do at short notice such work as refilling compasses, adjusting barometers, and repairing marine glasses. In addition to these, they have a large stock of protractors and telescopes of all grades.

## THE BRIDGE HEARINGS.

The three hearings on bridge removals had to be postponed two weeks because neither side was ready. The Ashtabula hearing will be held on Wednesday, the 8th, at the Stoll House, Ashtabula. The hearing on the Lake Shore bridge at Toledo will occur on Tuesday, the 7th, and that on the Nickel Plate bridge at Lorain on Friday, the 10th. The last two named will be held in Col. Jared A. Smith's office, Cleveland.

## APPOINTMENTS FOR NEXT SEASON.

The following appointments of masters and engineers for the season of 1896, have been announced by owners:

| STEAMER. | MASTER. | ENGINEER. |
|---|---|---|
| Alaska | Martin, Edward | |
| Arabia | Murray, Robert | Welch, Patrick |
| Badger State | Gillies, Alex. | Walker, J. L. |
| Baldwin, S. C. | Madigan, J. | Hall, Joseph |
| Boston | Buie, Dugald | McCabe, Thomas |
| Boyce, I. J. | O'Day, Simon | Muzzey, John L. |
| Buffalo | Shea, Patrick | McNulty, Wm. |
| China | Christy, Charles | |
| City of Collingwood | Bassett, W. J. | Robertson, Chas. |
| Holland | Pardee, George | Snider, Frank |
| Clarion | Nelson, Charles | |
| Chili | Drake, A. B. | Stoddard, C. M. |
| Codorus | Ryder, D. | |
| Commodore | Gardner, R. D. | Brooks, J. W. |
| Conemaugh | Bloom, Frank | |
| Cuba | Young, Robert | Mayberly, J. |
| Curry, S. S. | Robarge, George | Norton, James |
| Chicago (s. s.) | McCabe, F. J. | Miller, F. A |
| Chamberlain (Br.) | Foote, James | |
| Delaware | Mackenzie, A. | |
| Erie (Br.) | Sullivan, P. | McMaugh, Wm. |
| Florida | Murphy, Henry | Wise, G. M. |
| Foster, I. N. | Packard, C. B. | Currie, James |
| Fountain City | Clark, M. C. | |
| Gilbert, W. H. | Cowley, R. J. | Wood, J |
| Grand Traverse | Kelly, Andrew | Carter, Edward |
| Harlem | Gillies, Donald | Hess, Henry |
| Hart, E. C. | Hart, C. B. | Miller, James |
| Hart, F. C. | Hart, H. W. | Hudson, Timothy |
| Hudson | McDonald, A. J. | Trouton. M. |
| Hurd, J. L. | Boyd, Wm. | Keister, George |
| India | O'Neil, P. | |
| James, H R. | Owens, James | Trumbull, James |
| Japan | Doherty, John | |
| Juniata | Delaney, Henry | |
| Lackawanna | Weinheimer, F. | Lewis, Wm. B. |
| Lehigh | Berro, Frank | |
| Lora | Ackerman, J. C. | Van Liew, L. |
| Lycoming | Wright, L. | |
| McCormick | Huntley, M. A. | Richards, James |
| Massena | Dana, Frank | |
| Macy, S. J. | Gotham, M. W. | Gregory, W. F. |
| Mahoning | Corcoran. Joseph | |
| Majestic | Hagan, H. J. | Burke, Chas. H |
| Miami | Case, George W. | Wellman, James |
| Milwaukee | Folan, Michael | Rainey. J. W. |
| Mohawk | Jones, Valentine | Laney, M. J |
| Montana | Jones, S. R. | Tibby, Wm. |
| Moore, C. W. | Hart, E. W. | Schram, Jules |
| Morley, G. W. | Owen, James | Chapman, C N |
| Mills, J. E. | Ellery, Thomas | |
| Metamora (Br.) | Gilbertson, R. H. | House, A E |
| North Land | Stone, Henry | Walker, R. E. |
| North West | Miner, George A. | Toner, M. |
| Northern Queen | Vaughn, J. F. | Stewart. A. F. |
| Pewaukee | Christoferson, S. | Brown, Wm. |
| Russia | Greene, John D. | Brown, Wm. |
| Scranton | Greene, James S. | Von Evry, Chas. |
| Schuylkill | Miller, H. | |
| Soo City | Driscoll, M J. | Hopkins, Byron |
| Susquehanna | Riley, M. | |
| Seneca | Fisher, John | Mark, J. W. |
| Shawanaga (Br.) | Tindell, James | Norton, P. |
| Turner, A. A. | Scott, W. H. | Hopkins, George |
| Telegram (Br.) | Ganley, James | Payne, James |
| Vanderbilt | McCormick, Neil | Hale, F. W. |
| Vega | Wallace, W. H. | Sterling, Chas. |
| Vulcan | Oldorf, Adolf | McMonagle, John |
| Wallace, R. | Smith, John N. | Stoddard, Edwin |
| Welcome | Roulette, P. | Coulter, George |
| Williams, G. F. | Ellis, T. C. | Higgins, —— |
| Wissahickon | McCarty, John | |
| Wright, A. J. | McCumber, M. | Holt, Martin |
| Wyoming | Conners, James | Bohnert, Geo |
| Zenith City | Rae, F. C. | Peck, L. M |

| TUG. | MASTER. | ENGINEER. |
|---|---|---|
| Boscobel | Elliott, Frank | Hart, Jay |
| Edna G. | Cox, Joe | O'Brien, C. W. |
| Emmett, Robt. | Elliott, David | McLaren, Mike |
| Leathem, John | Tufts, Henry | Sanders. Ole |
| Niagara | Brown, Claude | McCrea, Walter |
| Nelson, George | Tufts, James | Allen, Charles |
| Pierce, E. M. | Short, Edward | Truscott, Wm. |
| Sweepstakes | Phelps, George | Gartung, Gus. |
| Smith, Ella M. | Burrington, Riley | Oscar, Jacob |
| Smith, Sydney | Batcheller, Peter | Webber, Edward |
| Traveler | Forest, Albert | Tompkins, Roy |
| Winslow | McCarty, Dan | Seleno, Leon |
| Weideman, R. W. | Keeler, Eugene | Fetig, John |

| SCHOONER. | MASTER. |
|---|---|
| Butman, M. | Lowe, Oliver |
| Carpenter, A. A. | Fullman, Walter |
| Conquest | Braun, John |
| Evaline | Anderson, Gilbert |
| Ewen, F. D. | Hansen, A. C. |
| Hawgood, H. A. | Bang, Lewis |
| Moravia | Peterson, Peter |
| Sonora | McFarlane, Geo. |
| Wallace, D. | Ingraham, F. |
| Wayne | Elliott, —— |
| Wilson, Mabel | Gotham, James E. |

# NEWS AROUND THE LAKES.

## CHICAGO.

THE MARCIA HARD AGROUND WITH 136,000 BUSHELS OF WHEAT IN CHICAGO RIVER—PORT MOVEMENTS.

CHICAGO, March 31.

The Dunham Tug Co. towed the schooner Annabel Wilson and the steamer Lewiston to Armour's elevator; the schooner Annie M. Peterson to the Galena elevator; the schooner H. D. Alverson to the Indiana elevator; the schooner D. P. Dobbins to Armour's D elevator; the steamer Peerless to Miller Bros.' dry-dock.

The first annual reception and ball to be given by the members of the American Association of Masters and Pilots, Chicago Harbor, at the Medinah Hall on Wednesday evening April 8, promises to be a great success.

James L. Higgie, jr., receiver for the Chicago vessel owners Towing Co., has sold the tug Calumet to Messrs. Graham and Helmert of Marquette. Consideration $5,100.

The Holland & Chicago line have appointed the following officers to their steamer Soo City—captain, M. J. Driscoll; chief engineer, Byron Hopkins; clerk, F. M. Hubbard. Steamer City of Holland—captain, George Pardee; chief engineer, Frank Snider; clerk, Frank J. Carlin. The steamer Soo City goes into commission this week.

Capt. Simon O'Day and Chief Engineer John L. Muzzey arrived here last week and are fitting out the steamer Isabella J. Boyce.

The Independent Tug Line towed the schooner Marcia and Malta steamer City of Naples and Whaleback No. 117 to Armours A & B elevators, the schooner Louis A. Burton to the basin.

The schooner Marcia, which took on 136,000 bushels of wheat last week at Armour's A & B elevator, will probably have to unload a portion of her cargo, as the united efforts of the I. T. line's powerful tugs, William Dickinson and Charnley, have failed to tow her from the elevator dock.

THOMAS WILLIAMS.

## BUFFALO.

THE ICE GOES OUT OF THE CREEK AND THE DRY-DOCKS RESUME BUSINESS—INQUIRY FOR FLOUR STEAMERS.

Buffalo, March 30.

Still no business. Vessel men are standing about with their hands extended, but shippers are not putting anything in them yet. This holding back is getting to be very wearisome. Coal shippers declare that it will be the end of April or close to it before they will want any tonnage. Lumber shippers are saying nothing.

Still there is activity of some sort. Vessel owners are plenty and the meeting of lake underwriters last week kept them here three or four days. They were very slow with the work and did not issue the complete policy form last week at all. Of course vessel men who own the low class craft are complaining that the towering height of 18 per cent. on which the last of them are set is prohibitive, which it was probably intended to be. When it is publicly stated that steel vessels cost the companies 5.85 per cent. last season the gap between 18 and 3½ does seem to be an exceedingly wide, not to say arbitrary one. In spite of the low water, insurance men are not looking for many early losses, they say. The supposition is that vessels will be more careful than they were last spring.

Vessel men are laughing at the joke played on the innocent public by the Western line in announcing its appointments. The steamers Empire State and Idaho are "filed away" as the aldermen would say, up the creek, where they are likely to stay till sold, but appointments were made for them the same as the rest. On examination it was found that the two shore men who take care of the boats for the company were named for captains and that the "J. Smith" and "W. Brown" who appear as engineers are entirely fictitious. It was a rare stroke of genius.

It was the 29th of March before the ice finally went out of the creek and it left the outer harbor and lake as solidly locked up in the ice as at any time this winter. There is at once a rush of vessels for the dry-docks, which have been emply for some weeks, partly on account of the frozen condition of the dock approaches and partly because it was thought that there would be time enough to do the work after the ice went out.

There is sticking on the ceiling of the ship-broker's office of Brown & Co., the number 24, which is to note the fact that Joseph B. Rodgers, the junior member of the firm, was married on that day. The bride is Miss Ida Cowen, of this city. A trip to the seaboard is now in progress.

Manager Henry, of the Lehigh line, denies that the wooden boats of that line have been offered for sale, as was given out some time ago. He says that someone asked for a price on one of them, and it was given, and they would probably all be sold if satisfactory prices could be got for them, but they are no more for sale than any boat is. This is the way the Anchor line boats were offered for sale. Somebody is very officious.

There is already negotiation for a few good-sized steamers to bring down flour from Duluth. They will have to be nominally in some line, but they will be handled by outsiders, the line sanction being necessary to secure them the benefit of the through rate. Western flour shippers are anything but satisfied with the rates made, and this is a move to get a better one, if the thing can be done. They are already saying that the rate is going to cut them out of the export business.

Manager Bullard, of the Union line, went to Florida about three weeks ago in search of better weather. He went down from New York by water and encountered a firece gale all the way to Jacksonville. It was expected that he would be back this week, but word comes back instead that it is cold down there and he will stay another week.

The talk of bringing down some of the side-tracked Chicago tugs to start an opposition line here, and perhaps on Lake Erie generally, has been revived. When the Chicago deal was made there was word to that effect, but nothing came of it. Now it is reported that there is a Chicago man on the spot looking into the chances. It will pay him to think twice before he makes the trial. Several good men and true have made a dismal failure of it after waisting a season at it.

Following are the appointments of Maytham's tug line; Tug Fabian—Captain, H. Vroman; engineer, George Fratis. Gee—Captain, Charles Nash; engineer, John O'Connor. Acme—Captain, Thomas Doyle; engineer, F. Upper. Cheney—Captain, John Glover; engineer, W. Lennox. Maytham—Captain, John Farrell; engineer, Timothy Higgins. Kelderhouse—Captain, Al. McMinn; engineer, Thomas Higgins.

Photographs of the steamer Cormorant have been sent down from Milwaukee to show what an elegant job of new work has been done on her. It is said by her owners, the Niagara paper company, that she will be about as good as new when she comes out for business. The St. Louis of the same line, is receiving extensive repairs at Tonawanda.

JOHN CHAMBERLIN.

## PORT HURON.

WARM WEATHER AND RAIN SHOW THEIR EFFECT ON THE ICE AND THE BOATS—APPOINTMENTS OF ENGINEERS.

*Special Correspondence to The Marine Record.*

PORT HURON, March 30.

The wind blew a gale from the south Saturday and Sunday nights, with a very warm rain. The ice went out of Black River Saturday, and if this weather continues it will soon finish up the ice. There is still lots of ice in Lake Huron.

The barges Favorite and E E Tyson will tow behind the Maggie Duncan.

The Port Huron & Sarnia Ferry Co. have issued a souvenir pamphlet describing the attractions of Stag Island as a pleasure resort. It contains numerous views and a neat descriptive articles.

Port Huron Lodge, of the Shipmasters' Association, has received a letter from Mrs. Lydia Geel, acknowledging the prompt payment of $1,000, the insurance claim for the death of her late husband, Capt. Cummings S. Geel.

It has been definitely settled that the Arundel will go to Bay City on May 15.

A report from Lexington Monday says there is lots of ice, both up and down as far as the eye can see.

The steamer Britannic came out of the dry-dock Sunday and was towed to Marine City by the ferry Conger.

The steamer Mary will make regular trips between here and Algonac.

The wind continues southwest and it will blow the ice over to Canada without paying its export duty.

During the coming season Port Huron engineers will be located as follows: Arthur Armson, chief, Linden; Fred Bonner, second, Madagascar; Wilbur P. Boynton, chief, Canisteo; George H. Bowen, chief on new steam-barge now building here; Irwin G. Buzzard, chief, Maggie Duncan; Thomas Birch, chief, Colorado; Robert B. Buchanon, chief, Servia; Joseph Cadotte, chief, Thomson Tug Line; James H. Countryman, chief, John V. Moran; Duncan Campbell, second, John Spry; James Crochett, second, Mary Groh; Edward Cottrell, second, T. D. Stimson; John Dillon, chief, steamyacht Penelope; Harvey Depuy, chief, Pawnee; Robert Doman, second, J. C. Ford; Edward Egan, chief, E. W. Oglebay; James H. Fitzgerald, Dry-Dock Iron Works; Fred Fitzgerald, chief, Madagascar; Peter Finney, chief, tug W. B. Castle; J. H. Green, second, I. W. Stephenson; John Gibson, second, Norwalk; Ed Gripton, second, Linden; Edward Harvey, chief, tug C. L. Boynton; George W. Ingham, second, Thompson Tug Line; Dennis Kerrigan, chief, tug George Stauber; John Kinrie, chief, Port Huron and Sarnia Ferry Line; George A. Miller, chief, Kalkaska; Gilbert McSilland, chief, tug C. D. Thompson; S. G. Merrill, chief, F. W. Fletcher; B. Frank Miller, power-house, Chicago; Edward Moore, chief, tug Jim Pullar; James J. McCarthy, second, Rhoda Stewart; Harry Odette, power-house, Cleveland; Charles Odette, second, Simon Langell; James M. Oag, second, John V. Moran; L. C. Purdy, chief, T. D. Stimson; John Parron, second, H. J. Kendall; Edward H. Parry, second, Gogebic; Henry C. Percival, second, Pawnee; Anthony Rein, chief, Simon Langell; Charles Rice, second, Garden City; Harry Rondeau, second, Maggie Duncan; James Southgate, chief, Rhoda Stewart; Herman Schmidt, second, Cleveland; Thomas Treleaven, chief, Cleveland; G. W. Thorn, chief, Germanic; Clinton J. Trumbull, second, Canisteo; Albert Turner, second, on new boat building at Jenks' yard; Everett Van Liew, chief, B. W. Arnold; Leverette Van Liew, chief, Lora; Thomas Welch, chief, Iosco; Ansel P. Williams, chief, J. C. Ford; Andrew J. Wilson, Norwalk.

Capt. B. B. Inman, of Duluth, contemplates transforming the Belle Cross, in winter quarters here, into a wrecker and stationing her at the Sault. In that case he will use one of her old lumber barges as a lighter to go with her.

KENDALL M. R. CO.

## DULUTH AND SUPERIOR.

ICE BREAKING UP VERY RAPIDLY—OPENING OF NAVIGATION SET FOR APRIL 26 TO MAY 1.—LAKE AND-RAIL RATES.

*Special Correspondence to The Marine Record.*

DULUTH, MINN, March 31.

The blue waters of Lake Superior are now plainly visible for miles. The ice, which is rotting very fast, now extends only from the harbor to Eighteenth avenue east, a distance of about a mile What ice there is has been so badly honeycombed by the warm rains and the sun of the past few days that the first good wind will carry it away.

The ferry steamer Oden broke the ice in the bay Monday, making her first trip, Duluth to Superior and return. This is the Oden's first trip this season and opens navigation on the bay.

General Manager Farrington, of the Northern Steamship Co, has given out the lake and rail rates for the coming season. The rates go into effect April 9. A comparison of the rates on the various classes last year and this year are as follows:

1896—New York to Duluth, with usual differences from seaboard cities, 70, 60, 50, 35, 30, and 25 cents.

1895—From same to same, 90, 75, 58, 41, 34, and 30 cents.

1896—New York to St. Paul, 84, 74, 57, 41, 35, 30 cents.

1895—$1.04, 89, 71, 48, 39, 35 cents.

The same through rates will prevail to St. Paul, lake-and-rail, via Lake Michigan ports as via Duluth.

The east bound tariff, Duluth to New York, remains the same as last year, namely: 75, 65, 0, 35, 30, and 25 cents.

The rate on flour, Duluth to New York, is 20 cents; from Lake Michigan ports, 17½ cents; and 25 cents from the Twin Cities. The report sent out from Chicago that the flour rate to New York from that port is 20 cents, is incorrect.

The work of fitting out the vessels wintering in the port of Duluth is now in full swing. Among the vessels upon which preparations for the coming season have lately been begun are the steamers Colgate Hoyt, Trevor and Samuel Mather, and the barges 105 and 126. The Emily P. Weed is now ready for sea, she having been put in good shape at the close of navigation.

Vessel agents now look for the opening of navigation from April 25 to May 1.

The tug Eveleth came down from Two Harbors last week, but did not attempt to break through the ice into the harbor. She came to the edge of the ice, unloaded her cargo and returned down the north shore.

There will be but few improvements on the Duluth and Superior docks this year. All of the companies are provided with up to date machinery for handling coal, and have sheds for the storage of their hard coal, so there is not much need for making expenditures in those lines. And the dock capacity is sufficient to accommodate the Northwest for several years. The Great Northern Railway has just purchased 250,000 tons of coal at Cleveland for use on its lines.

A syndicate has just been formed to develop the iron deposits which have been discovered in the vicinity of Duluth. A large amount of money has been subscribed and operations will be commenced immediately. Those interested are very enthusiastic over the prospects.

ELLIS E. BEEBE.

## CLEVELAND.

A STRONG REPORT IN FAVOR OF WIDENING THE RIVER—MASTERS' AND PILOTS' CHANGE.

CLEVELAND, March 31.

The report of Col. Jared A. Smith, Engineer Corps, U. S. A., upon the proposition to widen the channel of the Cuyahoga River near its mouth. His report is strongly in its favor. His estimates for the work, cribs and concrete, are as follows, Renewing piers 1,800 feet north of Lake Shore Railroad bridge, $180,000; 260 feet south of bridge, $26,000: dredging, 200,000 cubic yards, $40,000; contingencies of engineering, $14,000; total for pier work, $260,000; on west arm of breakwater, $544,000; sheathing surface of cribs, $23,494; contingencies, $32,506; total, $600,000. Total for Cleveland, 600,000.

Col. Smith also reports, by request, upon Conneaut harbor improvements, and submitted estimates for pier extension, construction of breakwater, and dredging to a depth of 20 feet, is estimated at $610,000, including what has already been expended—80,000

At a special meeting of the local branch of the Lake Pilots' association held Wednesday evening it was decided to join the National Association of Masters and Pilots of Steam Vessels, S. W. Gould, William Somerville and Samuel Thurston were appointed a committee to tarn the property of the local association over to the national organization. Harbor No. 42 will be organized Saturday evening by B. F. Perkins, grand secretary of the national association.

# CORRESPONDENCE.

☞We do not hold ourselves responsible in any way for the views or opinions expressed by our correspondents. It is our desire that all sides of any question affecting the interests or welfare of the lake marine should be fairly represented in THE MARINE RECORD.

## OUR NEW LAKE CHARTS.

*To the Editor of The Marine Record:*

Probably the world cannot afford better charts of any ocean or locality than our government has furnished us of the lake region. In point of accuracy and in elegance of execution they are the peers of the best, and yet, there is one important condition or peculiarity in our navigation that is not provided for fully, and that is, "how to keep a vessel on her proper course."

It is generally supposed that when a vessel is correctly started on her course, and is kept strictly to that course, as indicated by the ship's compass, she makes a track that crosses the meridian in its run or voyage at the same angle.

Such a track is called the "rhumb-track." On the charts constructed on the "conic" projection this track would be a curve, concave toward the pole; but on a "Mercator" projection, such as our new lake charts, it would be a straight line. And for such a line it would be only necessary to apply the variation due to place of ship in shaping course to any locality.

Accordingly, the instructions given by our charts are to apply the variation of the locality of ship to the true course, and also to apply the deviation, if any, to obtain the compass course that will take us on the true course. Then, without further instructions, we are supposed to hold ship's head to such reading of compass till we reach our point of destination—and here our trouble begins.

The conditions necessary that a ship may sail on a true rhumb-line, when steered to a constant course, are that

The change of variation between the initial and terminal points of the voyage must be just equal to the change in the inclination of the meridian for the voyage, *i. e.*, to the convergency of the meridians passing through the two points.

Thus, if the change of the inclination, or the convergency of the meridians passing through two points is, say 5°, and the change of the variation between those two points be also 5°, then the track of a ship sailed to a constant compass course between those two points would be a true rhumb-line, and on a Mercator chart would be represented by a right line.

This is a beautful theory, and if, as supposed and taught by all writers on navigation, that the track of all ships were thus conditioned, then it would be an easy matter to keep track of a ship in dark weather, and to conduct a ship to any part of the world.

But, unfortunately, the idea is a most grievous error—a sorry mistake—with not a word, or not a syllable of truth in it—and for the simple reason that the conditions necessary to such a state of things do not exist.

There is no known place on the face of the earth, where, for a given change of geographical position, the change in the inclination of the meridians is just equal to the corresponding change of variation, and only on a few small areas can such conditions be found to prevail, even approximately.

In the entire Pacific Ocean, except for a small area in the Bering Sea and Straits, the change of variation for any difference of longitude, on any parallel of latitude, is less than the change in inclination of the meridians for the same difference of longitude, *i. e.*, less than the corresponding convergency of the meridians for the latitude.

As a consequence, the track of a ship steered to a constant compass course would lie south of the line indicating the course of starting, and be concave toward the equator, instead of being represented by a right line on a Mercator chart, whereas on the entire lake region the change of variation for any change of longitude is much greater than the corresponding change in the convergency of the meridian.

Thus, from Duluth to the Sault the difference of longitude is about or nearly 8°, the meridians of which two places converge nearly 6°, while the change of variation is nearly 10°—almost twice as great—so that the track of a ship steered to a constant compass course in the vicinity of the lakes would lie very much to the north of the right line representing such course on the Mercator chart, and be concave to the north, and utterly incapable of being represented by a right line between those places.

On the Atlantic coast from Florida to the Gulf of St. Lawrence the same condition prevails, as the 200 to 300 wrecks, whose bones fringe the shores of Sable Island, off the Gulf of St. Lawrence, can testify.

In sailing from the coast of Newfoundland to points in the vicinity of England and the North Sea, the change of variation is less, for any difference of longitude, than the corresponding change in the inclination of the meridians, so that the track of a ship steered to a constant compass course between any two places in that area of ocean would lie to the south of the line on the Mercator chart joining the two places.

From Cape Horn to the Cape of Good Hope the ship's track would lie altogether on the south side of the right line on the Mercator chart, joining those places, but it would be a reversed curve, like an elongated letter S. This condition would result from the fact that for a part of the way it is less than the corresponding change in the convergency of the meridians.

From the above considerations we see that we must abandon the idea that there is any such thing as a "rhumb-track" available for practical purposes—that any ship's track can be represented by a right line on a Mercator chart, or any other for that matter—for we cannot, if we try, sail a ship in a right line by keeping her head to the same compass course any more than we can make a curve of our radius fit to coincide with the curve of another radius, and the quicker we forget this sorry mistake, the quicker will we be in the way of knowing how to keep our ship to her proper course.

This lamentable mistake that a ship's track when steered to a constant compass course may be represented by a right line on the Mercator chart is an outgrowth from another mistake equally untenable, and that is the idea that "there is one individual point, that as a center, controls and gives direction to the compass needle in the entire magnetic hemisphere." There is no such thing.

From well-known laws of navigation it is easy to show that the near portions of a magnetic field will control and give direction to the compass needle, in spite of a larger and stronger position of the field that may be more remote. So that by changing the place of the compass we bring it within the influence of other portions of the magnetic field, when we find that we have a new pole, and so we may continue to do indefinitely, *i. e.*, to say, instead of having merely one magnetic pole we may have as many as there are possible positions for a compass in the magnetic hemisphere.

A method recently adopted of overcoming the difficulty above pointed out is to apply the means of variation of the initial and the terminal points of a route to the true course between them, instead of merely the variation at point of departure, as we are told to do by the instructions of the chart.

An example will illustrate:

In shaping a course, say from Whitefish to Copper Harbor, on Lake Superior, the master finds the true course to be N. 70° W. and the distance, say 125 nautical miles, the variation at the Point being 1° to the left, and that at Copper Harbor being 3° E. or to the right, the mean of which is 1° E. or to the right, giving a compass course of N. 71° W., according to lake usage.

By following the instructions of the chart we would apply the variation due to the locality of the Point only, giving a compass course of N. 69° W. or 2° to the right of the other course.

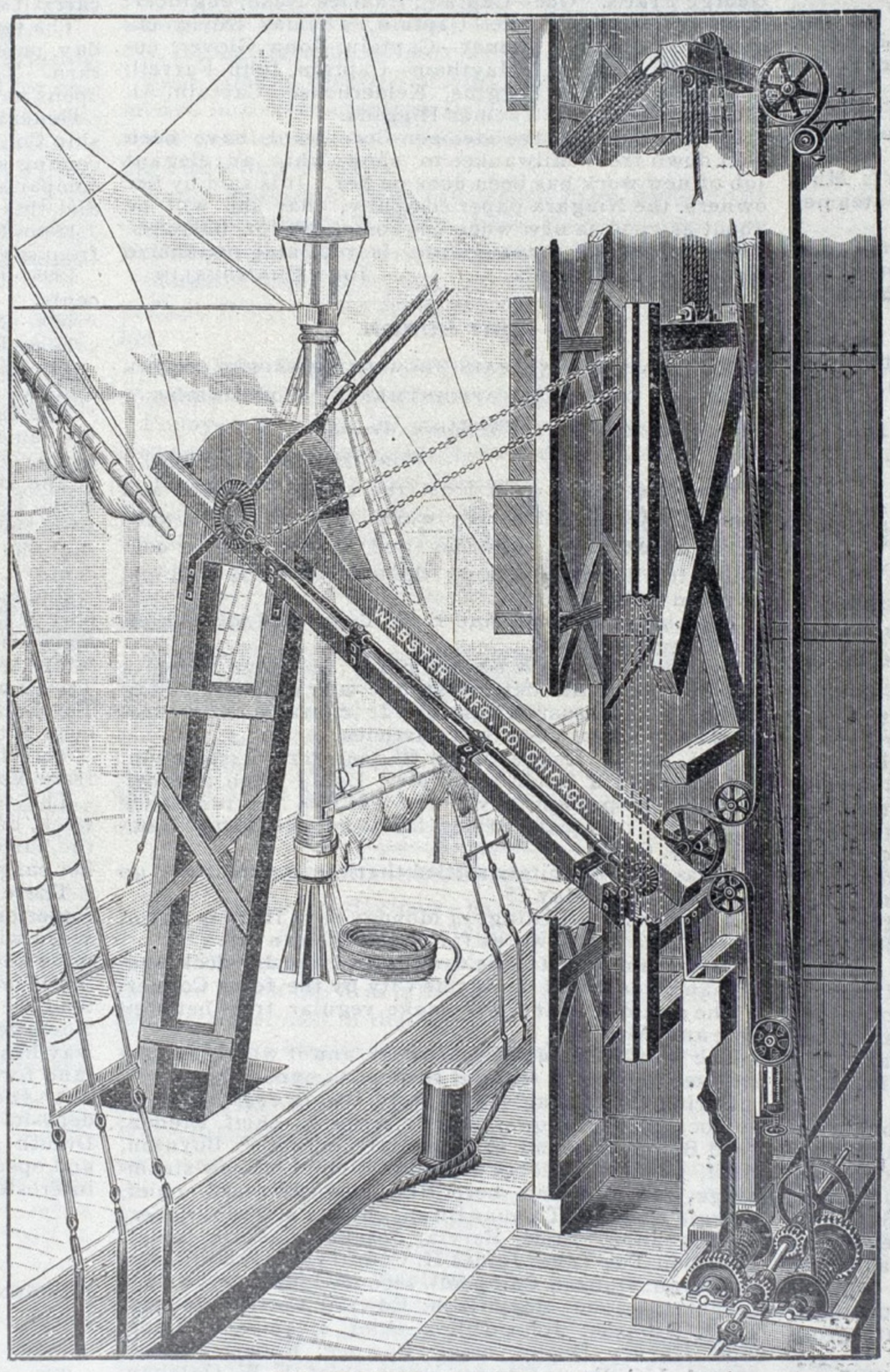
By the former course the ship would sail in the curved line AB, attaining the point of destination at B, (see Fig. 1) while by the second course, as per instructions per chart the ship would sail in the curve AC, attaining a point C, 4.4 nautical miles, or five statute miles north of the objective point B. Again:

From Caribou Island, Var. 0, to Grand Marais, Var. 6° E., distance 183 nautical miles, course true, N. 82° W. The lake sailor would take his compass course, half the change of variation, or 3° to the left of the true course, giving him N. 8 ° W. for compass course. This would lead him to his objective point B, by the curved line AB. (See Fig. 2.)

The salt water sailors, following the instruction of the chart, and the practice at sea, would assume the true course as his compass course, there being no variation to apply.

This would lead his ship in the curve AC, to the point C, 10 nautical miles north of his objective point, for it must be remembered that we cannot sail a ship on a straight line if we try by keeping her head to a constant compass course. From the above considerations we see that the instructions per chart may get us into difficulty in shaping courses on the lakes.

This failure of the instructions on our new lake charts, to meet our requirements in the shaping of courses, does not appear to be the result of any lack of care or painstaking in their preparation, but rather of a peculiar feature of our navigation; for the mistake of supposing that the track of a ship steered to a constant




THE BOOM STYLE MARINE LEG.

compass course may be represented by a straight line on a Mercator's chart, is common to the whole world of navigators.

This peculiarity lies in the rapid change of variation for change or difference of longitude.. There is but one other district or area of navigation on the face of the earth similarly conditioned, and that is the northern part of our Atlantic Coast, say from New York to Newfoundland, where the feature is almost precisely the same as with us.

There are indeed two other areas where this condition prevails, but, as there is only a small amount of commerce on them, the results are not so much noticed. These areas are Hudson Bay and Bering Straits.

The method of applying the "mean variation" in shaping course on the lakes, is effected, but, in the case of long runs it is objectionable in that it leads the ship considerably off the right line between the points of departure and of destination, thus exposing her to dangers not seen at first.

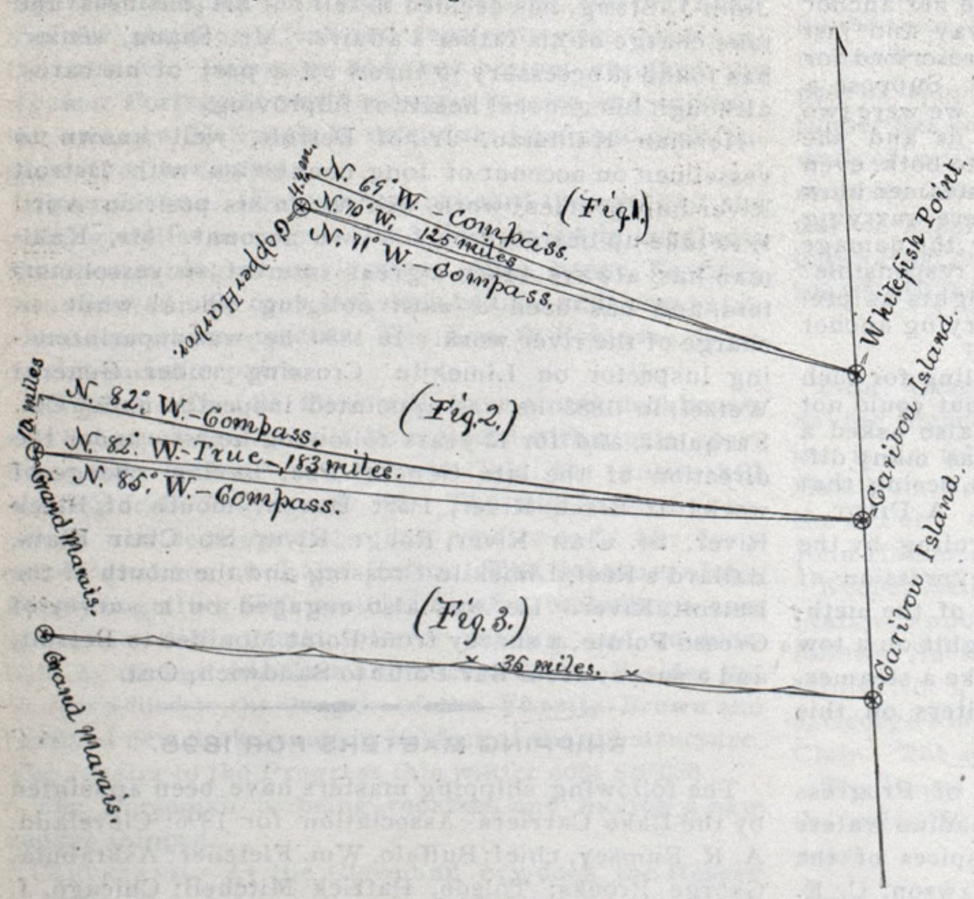
To obviate this difficulty I have suggested a swing of the ship's head, at frequent intervals, counter to that of the card, thus involving a frequent change of course.

From Whitefish Point to Duluth, a distance of some 287 nautical miles, the cards swing about 9°, or say 1° for every 32 miles of eastings or westings. (See Fig. 3.)

Then, suppose that after sailing 15 or 17 miles on our course, we swing ship's head to south 1°. Then after sailing 30 to 35 miles further, as indicated by our log, accordingly as we are on an 8-point course, or on an oblique course, we swing ship's head again 1° south, and so on to the end of our voyage or run. By this means we would keep close to the right line joining the two points between which we set out to sail, and never more than ½° off our course. And in this case we would apply only the variation at the point of departure. For the lower lakes, about 35 miles for 1° would be the proper distance. H. C. PEARSONS.

Ferrysburg, Mich.
March 28, 1896.

[Captain Pearsons' letter contains a number of valuable observations, but we would hardly advise any one to read it in the hope of gathering new information, as it is misleading in some respects. Capt. Pearson writes of convergence and inclination of meridians in connection with the Mercator chart. On this chart the scale is prepared so as to make the meridians strictly parallel and this does away with convergence or inclination in calculations on this chart. The idea of securing the mean variation is by no means new, but is recommended by the Hydrographic Office for short distance sailing. No Hydrographic Office charts that we have ever seen contain any instructions on this line, and the only occasion in which the variation of the point of departure alone is allowed for in shaping a course is in long distance sailing, where applying the mean variation for the whole distance would cause the ship to traverse an unnecessarily greater distance. On long distance sailing, on salt water, the ship's position is taken as often as every four hours and the ship's course is shaped anew as often, if thought necessary. Capt. Pearson offers this, apparently, as a discovery of his own. We hope to print a communication next week which will correct the errors contained in the above communication, which contains much that is of value. —ED ]




NOTE.—In Fig. 3 the curvature of the short parts of the ship's track is slightly exaggerated, in order to avoid confusion of lines. H. C. P.

## IS LAKE SUPERIOR BEING DRAINED?

*To the Editor of The Marine Record:*

In all the discussions I have noticed in the papers relative to the low water on the lakes, I have failed to notice that any attention has been called to the raise of water on Lake Superior. In the last four years the water in this lake has raised about two feet. In '92 it raised about 8 inches. In '93 about 7 inches, and in '94 about 9 inches. In '95 it about held the same level as in '94. These figures in regard to the rise of water are approximate, as my informants and personal obligations did not require the keeping of the exact record.

In looking for the reason of this rise, particularly when the lakes whose level is below Superior have been gradually lowering in the above time, I have come to the conclusion that on account of the dredging that is being done at the head of the American and Canadian "Soo" canals, and the dumping of the same at the head of the rapids, the head of the "Soo" River is being gradually dammed, thus keeping the level of Lake Superior manyfeet higher than it should be above the lakes below.

It would probably be well for those most interested tolook this matter up and see if this is not a solution for a part of the low water whose level is below Superior.

SUBSCRIBER.

Sand Beach, Mich., March 28.

Probably the first fuel sold to any large boat on Detroit river this season was sold to the steamer City of Detroit last Saturday at Graham's rapid fueling docks, at the foot of Twenty-first street. Mr. Graham, who entered agressively into the vessel fueling business last year, is a pusher and has a location which is m uch in his favor in securing a good share of the trade.

The Johnson Co., of Lorain, have announced that they expect to handle 1,500,000 tons of freight of all kinds at their dock in Lorain this season.

## BOATS FOR HUNTING AND FISHING.

Mr. W. H. Mullins, of Salem, O., whose advertisement appears on another page, has the following to say about his boats, especially those adapted to duck hunting, one of which is shown in the accompanying illustration:

Realizing from my own experience as a duck hunter the need of a practical, seaworthy, staunch and durable boat, I have, at considerable expense, modeled and made dies for making the safety duck boats which I am offering to the trade, and to the duck hunters of the country. I am making my boats in four materials, so as to meet the requirements of the different shooters. My aluminum boat is the nobbiest, lightest, and most artistic boat that has ever been brought out, and for those who can afford the luxury of a boat made of this material, is undoubtedly the *ne plus ultra*. My Manganese bronze boats will be found practically indestructible, and a most perfect sporting boat. For the manufacture of these boats I use Manganese bronze, the same as recently used for the sheathing of the American yacht Defender. It is stiff, tough, and very durable, aud undoubtedly the best material for the manufacture of boats ever introduced. Manganese boats and copper boats will probably be found preferable to aluminum for use in salt water or marshes bordering on the sea. My galvanized steel duck boats are made of the very best quality of this metal, and where a low cost boat is wanted, are preferable to anything that has ever been devised. They can be finished at a cost to compare with the cheapest wooden boat placed on the market, and there is no comparison between the wearing qualities of the two types. The steel boat can be left exposed to the weather for months at a time, and will be as tight and seaworthy at the end as if not exposed, while a wooden boat would crack open and be rendered useless.

A METAL DUCKING BOAT.

"All my different styles of duck boats are stamped in dies by very heavy and powerful machinery. The construction is simple, rigid, water-tight, and secure. The boat is extremely light in weight and durable. At either end of my boats I use a large air chamber sufficient in size to float four men on the upturned boat should it happen to capsize, rendering it practically nontinkable. The bracing of he boats is secured by head-shaped ribs of 20-guage steel, copper or aluminum, as the case may be, riveted at equal distances on the inside of the boat, making the lightest and strongest possible construction. The bottom is moulded after the lines of the McDougall whaleback vessels, the shape being such as to enable the hunter to run into very shallow water, through tangled grass and reeds, and over light ice and hidden logs and obstructions with the least possible labor and danger. With this boat is furnished a light reversible wooden bottom or footboard, a moveable seat, a pair of oars, pushing oar and paddle."

Mr. Mullins also manufactures a fine double-ender pleasure boat, with air chambers, and a square-stern pleasure or fishing boat.

On special contracts Mr. Mullins fits his boats with folding centerboard and rudder, and arranges a mast support, with any other practicable changes or additions.

## A GOOD RECOMMENDATION.

The following has been received by a prominent local company which has been making inquiries in regard to the merits of the Empire Boiler Cleaning Compound:

Replying to your favor of the 19th would say that we have been using the Empire Boiler Cleaning Compound in the boiler of steamer Richard Peck for over a year, and can positively assert that it is the best boiler compound we have ever used. It has thoroughly cleaned our boilers and has stopped all incrustation. In fact it has accomplished all that has been claimed for it, and we are entirely satisfied. Yours truly,

FRANK SOUP,
Supt. Eng. New Haven Steamboat Co.

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IF the present Canadian movement to allow American vessels to engage in the Canadian coastwise trade should meet with success, it would divide up the shipments so as to give Port Arthur a greater share than at present, but would not, it is thought, greatly increase the volume of wheat to come down the lakes. It would tend to seriously reduce receipts at Buffalo, however, and at Ogdensburg as well. Such a movement would be a fine thing for such American steamers as can pass through the Welland Canal.

NAVIGATION is now open for the passenger lines, and while the weather to-day does not indicate that winter is ended, still, the near approach of Easter is taken as a sign of spring. The most regrettable thing about the warm weather this week has been its demoralizing effect upon vessel men, some of whom felt their starch rapidly disappear under the effect of the sun's rays. With rates set so low, even on comparatively small contracts, the effect is depressing. This seems unnecessary, too. Iron men in all branches are holding up prices by sticking together, and the vessel men could gain much by the same policy. It may not be too late yet.

WE desire to call the attention of our readers to our supplement this week, which is worthy of careful scrutiny and a place on office walls. While the showing for last year is not encouraging, yet the study of the record from 1847 forward affords some of the greatest gleams of hope which we have had of late when considering lake levels. The fall from 1886 to 1895 is not unlike that from 1842 to 1847, and the recession was then more gradual. Nevertheless this diagram should not be considered as showing that the project for controlling lake levels is unnecessary. While there is every reason to believe in at least a partial restoration of such high water as prevailed, say, in 1886, yet the temporary loss to commerce during a season of low level would more than compensate for the construction of dams necessary to maintain levels at a moderate height.

THE employes of the lake shipyards would do well to assume a less aggressive and arbitrary attitude in regard to labor questions as they may arise. So-called skilled labor is better paid on the lakes than on the coast, and as coast builders have begun to invade lake territory, the yards on the lakes may be compelled in time to either reduce the pay of the men or to install portable riveting machines and other labor-saving appliances. The prevailing sentiment among shipbuilders is still, we believe, opposed to this, and it will probably not be done as long as it can be avoided; but anything in the line of annoying and expensive strikes will bring this about more quickly than anything else. Portable and stationary riveting machines have of late been illustrated in a number of prominent papers of the trade, including THE RECORD; and these illustrations should be an object lesson to any class of men who may consider that they hold all the trump cards and may play them as they like. The strike at the Wheeler yard during the past week, upon a controversy which involved matters of a comparatively trifling nature, might as well have been talked over without suspension of work. The strike resulted as any outsider would have predicted and involved annoying delay and loss to all. It is only reasonable to expect that builders will, so soon as it is certain to be a paying investment, buy machinery that will always be reliable.

## MUSICIANS AND SEAMEN HAVE EQUAL RIGHTS.

At the last admiralty term of the U. S. District Court for the Northern District of Illinois, Judge Grosscup decided a new point in Admiralty Law that is of a special interest to owners of excursion steamers.

The case was that of Rimpler vs the steamer John A. Dix, in which Rimpler claimed a lien against said steamer for services rendered as a musician on board said steamer while she was engaged in the excursion business in and about Chicago. Messrs Meek, Meek & Cochrane, appeared for the libellant and Mr. Charles E. Kremer appeared for the steamer. At first blush, the court was inclined to decide against the libellant and ordered briefs to be filed. After briefs were filed, the court decided in favor of the libellant and said that the effect of his decision was to hold that a musician employed on an excursion steamer was entitled to a lien for his wages the same as the seamen on board the boat.

This is now the law in the Northern District of Illinois, and as there are many excursion steamers in that jurisdiction that employ musicians, the decision will be hailed by the musicians with great delight.

## QUERIES AND ANSWERS.

A PUZZLING QUESTION.

*To the Editor of The Marine Record:*

There is one question that I would like to ask and have answered through your paper, if possible. I have looked up all the laws and rules that I can find, but have been unable to find anything which covers the case I shall describe.

Last year I was in a tow barge, and during the season we towed after three different steamers. With each one occasion arose for us to go to anchor. In each case the steamer let go her anchor and we hung to her by the tow line, and in each case the steamboat captain advised us differently as to what lights to display. One said, carry just your anchor lights; another said, carry anchor lights and side lights and small light aft; and the other said, carry side lights and small light as prescribed for towing.

Now, which were the proper lights to carry? Would we be considered at anchor seeing we were not going through the water and had no headway and the steamer was in no way to take care of us as she had her anchor down, or would we be considered under way and just carry side lights and a small light aft as prescribed for towing, seeing we had no anchor down? Suppose a steamer should come along and thinking we were two boats at anchor attempt to go between us and she should do damage to herself, or to us, or to both, even though we might show a torch and the steamer blow the danger signal; this is providing we were carrying anchor lights, who would be held liable for the damage done; who would be to blame and held responsible? Also how would it be if we were carrying lights as prescribed for towing, and how if we were carrying anchor and side lights and small light aft?

What does the law say and what is the ruling for such a case as that mentioned? I have looked, but could not find anything which covers it, and I have also asked a number of our masters and have received as many different answers or else no answer at all, seeing that they did not wish to commit themselves. A PILOT.

We think this a matter for arbitrary ruling by the proper authorities rather than for the expression of opinion. There are objections to all three of the methods mentioned. Side lights and anchor lights on a tow barge would make her look too much like a steamer. We would like to hear from other writers on this subject.

THE RECORD is in receipt of the Report of Progress of the survey of Tides and Currents in Canadian waters which is being conducted under the auspices of the Dominion government by Mr. W. Bell Dawson, C. E. Researches have so far been confined to the Gulf of St. Lawrence and the Straits of Belle Isle.

## THE FREIGHT SITUATION.

Owners of vessel property are naturally depressed over the break in their ranks shown by the closing of a contract by the Wallace fleet, of Lorain, to carry a block of ore from the head of Lake Superior to Lake Erie ports at $1. This contract expires with October, but is ten cents below what has been steadily marked out as the opening rate. The effect upon to-day's market has been decidedly bearish, but up to the time of going to press no break has been made. This chartering was undoubtedly hastened by the warm weather, which has brought the vessel men out like bees.

A contract has also been made for the transportation of a large block of coal to the head of Lake Superior at 42½c. James Davidson has taken 50,000 tons at that figure. While this rate is lower than the general predictions, it compares most favorably with rates for former seasons, especially when the improved loading facilities are taken into consideration. This advantage is offset, it is claimed, by low water; but as the indications are that the mean depth for the season will probably be not less than last year, the rate must be scored as a decided advance.

M. A. Hanna & Co. have secured the Green Bay coal contract, 60,000 tons, which will probably be shipped from Ashtabula. They will be likely to carry this in outside boats, but a contract is hardly looked for, as this firm can easily offer this in single cargoes to vessels which they can charter for ore on the return trip.

There is now about 8,000,000 bushels of grain afloat in Chicago, of which all but a million bushels comes to Lakes Erie and Ontario. About 8,000,000 bushels of wheat has been provided with vessel capacity from Duluth and Superior, and this shows that grain shippers have been working quietly, but assiduously, as their transactions have not pulled the market.

Several good contracts in flour and package freight have been reported, the transportation lines finding it necessary to increase their capacity by chartering outside steamers.

Wheat in store at the head of the lake is apportioned amount the various terminals elevator lines as follows:

| | |
|---|---|
| Belt line | 1,329,808 |
| Consolidated | 4,587,149 |
| Globe | 4,353,707 |
| Great Northern | 1.265,278 |
| Superior Terminal | 1,491,017 |
| Consolidated B | 328,174 |
| Consolidated H | 96,212 |
| Aggregate | 13,452,345 |
| At Minneapolis | 19,304,805 |

## PERSONAL.

Mr. Egbert P. Watson, the well-known editor of The Engineer, is suffering from an attack of nervous prostration. The last issue was wholly the work of professional friends.

Owing to Mr. John Stang's recent illness, his son, John J. Stang, has decided to sell out his business and take charge of his father's affairs. Mr. Stang, senior, has found it necessary to throw off a part of his cares, although his general health is improving.

Herman Kahlman, Jr., of Detroit, well known to vesselmen on account of long connection with Detroit River improvement work, will resign his position April 1, to take up business on his own account. Mr. Kahlman has always taken a great interest in vessel matters, and has been a most obliging official while in charge of the river work. In 1880 he was superintending inspector on Limekiln Crossing under General Wetzel; in 1883 he was appointed inspector under Col. Farquhar, and for 12 years following he was under the direction of the late General Poe, having charge of works at Black River, Port Huron, mouth of Black River, St. Clair River, Rouge River, St. Clair Flats, Ballard's Reef, Limekiln Crossing and the mouth of the Detroit River. He was also engaged on a survey of Grosse Pointe, a survey from Point Mouillee to Detroit, and a survey from Bar Point to Sandwich, Ont.

## SHIPPING MASTERS FOR 1896.

The following shipping masters have been appointed by the Lake Carriers' Association for 1896: Cleveland, A. R. Rumsey, chief; Buffalo, Wm. Fletcher; Ashtabula, George Brooks; Toledo, Patrick Mitchell; Chicago, J. W. Hanson, with N. P. Felt assistant; South Chicago, A. W. Watson; Milwaukee, Wm. Lennon.

# SHIP BUILDING AND REPAIRS.

## NEWS FROM THE YARD.

Aside from the launch of the Northwestern Transportation Co.'s schooner George E. Hartnell at Chicago, last Saturday, the feature of the shipyard news of the week was ths strike at F. W. Wheeler & Co.'s shipyard, West Bay City. The announcement having been made last week that the men would be paid by checks, the employes proceeded to make a fuss about it, and upon receiving their checks they quit work. The local merchants had prepared themselves with cash in order to cause as little inconvenience to the men as possible, but those merchants who had taken this precaution were in turn roundly denounced by the men as being in league with the shipbuilding company. The strike continued as strong as ever until Monday night, when the men suddenly changed their minds, decided to accept checks without question hereafter, and returned to work Tuesday morning.

The large steel schooner George E. Hartnell was launched on Saturday afternoon at 3 o'clock at the Chicago Shipbuilding Co.'s shipyard at South Chicago. Her dimensions are 352 feet long over all, 44 feet beam, 26 feet molded depth. She was built for the Northwestern Transportation Co., of Detroit.

The next two launches to occur will be that of the tug-yacht Edna G., on Saturday, the 4th inst., at the Cleveland shipyard, and that of the steamship George N. Orr at the South Chicago shipyard on the 15th. The Union Dry-dock Co. may decide to launch the yacht Enquirer before the latter date, but they want to practically finish her before placing her in the water.

Chicago yachtsmen are going into the sport with a vim this year. In addition to the racing yacht Vencedor and the Siren of which mention has been made before, W. R. Crawford, has contracted with the Racine Boat Manufacturing Co., for a fin-keel loop from designs by Joseph I. Myer, to be 65 feet over all, 44 feet level, 12 feet beam, 2½ feet depth, and 8½ feet draft. Seven tons of lead will be carried on the fin. She will be delivered by June 10, so as to be in readiness for the international lake regattas. The Vencedor, also building at Racine is in frame, but will be allowed to stand some little time before the planking is put on. Sne is screened from view. The Siren will be planked this week, and will be the first out. There is no secrecy regarding her.

## GENERAL REPAIR WORK.

CHICAGO.—At the Chicago Shipbuilding Co.'s yard the tug Van Raalte was in dock to have a leak stopped, and the new tug Lutz for repairs to her shoe, which was damaged when she was being launched.

At Miller Bros.' shipyard the L. M. & L. S. Transportation Co.'s steamer Peerless is in dock for bottom calking and new outboard bearings. The tug A. Miller was in for repairs to her stern bearings; the tug Bob Teed for recalking her bottom; the tug Rosaline for stopping a leak and repairs to stern bearings; the steamer Delaware had her bottom recalked; the steamer Portage is receiving some repairs and calking; the steamer Kaliyuga is receiving repairs to deck, engine room, and cabin.

PORT HURON.—Everywhere is heard the sound of the calking mallet as vessels are being placed in readiness for the opening of navigation. The barge Favorite has received new deck and deck-beams and new hatch coamings where needed. The Eva S. Robinson is receiving minor repairs.

DETROIT.—The St. Paul will have a new deckhouse, and her topmast spar will be replaced with a pole spar. Some new decking will also be laid, the entire bill ranging from $1 000 to $1,500. The tug Balize has received new decking and other repairs to fit her for a season's rafting on Lake Huron. The schooner John Jewett is getting $500 worth of repairs, including a new deck, new cabin-trunk, interior repairs, and an overhauling of her windlass and anchor deck. Besides the 50 feet added to the length of the Fayette Brown she received new deck-beams in 100 feet of the old structure. The repairs to the Progress this winter cost $10,000.

The Norseman is being recalked and having a new rudder shipped.

CLEVELAND.—At the Cleveland dry-dock the Hesper is still undergoing repairs. In addition to calking and refastening she is to receive steel arches.

The Sarah E. Sheldon is being strengthened with a steel cord ¾x24 inches, and will have diagonal straps ¾x12 at each end. The Escanaba is getting a general overhauling.

The C. B. Lockwood was in the Ship Owners' drydock this week to stop two leaks. The J. C. Lockwood is now in, and is getting a new piece of keel, new garboards, some planking and bottom calking.

OWEN SOUND.—Several steel plates on the cabin deck of the Athabasca were found to be so affected by rust that it was necessary to remove them. She is also receiving new ceiling. The Alberta has received part new deck. The cabin of the D. G. steamer Dolphin is being rebuilt.

COLLINGWOOD.—The work of rebuilding the W. B. Hall—renamed St. Andrew—is being pushed. The steel arches are in and the upper deck will be put in soon. The machinery has not yet arrived. The Great Northern steamers will be painted white this season. The Northern Belle has had her engines rebuilt by Inglis & Sons, and has had some new frames and deck-beams. The machinery of the steamer Maganetawan will be put in a new hull next winter.

### NOTES.

The new tug building at Heath's yard, Benton Harbor, for Capt. W. H. Singer, of Duluth, will be named the Superior.

The big lake tug John Owen is getting a new upper deck and rail. She was rebuilt last winter.

J. G. Laird & Sons, of Ashtabula, are building a large fueling scow for M. A. Hanna & Co., which will be operated at that port. It will be 180 feet long, 36 feet wide, and 16 feet deep.

David Dessault has begun extensive alterations on the passenger steamer Yattaw at Sandusky.

## HISTORY OF THE BAG BOOM.

The inception of the bag boom in 1891 marked the first year of any considerable movement of logs from Canada to the Saginaw Valley, 80,000,000 feet being brought there from Georgian Bay in that year. The rafts range from 2,000,000 to 6,000,000 feet, and while a raft occasionally goes ashore in a gale, loss is estimated at only 500 out of each 70,000 pieces rafted. In 1892 there was brought from Georgian Bay to Saginaw River 184,500,000 feet of pine logs. In 1893 about 270,000,000 feet went to Michigan mills, and the estimated quantity handled in 1894 was but little less than 300,000,000 feet. The Saginaw River received the lion's share of the Canadian logs rafted last year, 142,000,000 feet having been entered at the custom house of Bay City, and 25,000,000 feet at Saginaw. The total shipments received at the several Michigan ports were 579,229,742 feet. Many millions of feet of logs designed for Michigan mills were hung up in Georgian Bay mills owing to low water, and could not be got out in time for rafting. The rafting season usually begins about June 1 and closes early in November. The estimated value of the logs handled last season was $11 a thousand. Michigan lumber men have purchased large quantities of pine timber limits in the Georgian Bay district for the purpose of supplying their mills. The value of Canadian timber has been trebled by this demand for it, and the work of cutting and rafting logs has furnished employment for Canadian labor and a market for vast quantities of supplies. It is estimated that the quantity of logs rafted during the season of 1896 will approximate 300,000,000 feet.

## THE LIFE SAVING SERVICE.

Capt. Chas. E. Motley, keeper of the Cleveland Life Saving Station, has re-enrolled last season's crew. The list is as follows: No. 1, Arnold King; No. 2, Frank Hamilton; No. 3, David Sutherland; No. 4, Alex Colder; No. 5, Peter Coughlan; No. 6, James Richards; No. 7, John Hammes; No. 8, James Foster.

Keeper Nelson Craite, of the Kewaunee Life-Saving Station, announces his crew for the season of 1896, as follows: Surfman No. 1, John Haule, Jr.; No. 2, James White; No. 3, Ben Kuhlman; No. 4, Henry Lafond; No. 5, George Flaherty; No. 6, Peter Dionne; No. 7, Jos. LeClair. The station opened at noon, April 1.

The House took action a few days ago toward making the salaries of superintendents uniformly $1,800 per year.

Does anybody want a private car? One of our advertizers wants to trade one for a steam yacht. See page 12.

## OBITUARY.

### GEORGE W. WILLIAMSON.

Mr. George W. Williamson, of the firm of Williamson Bro., Philadelphia, the makers of the well known Williamson steam steering and hoisting engines, died at his home in the city on March 26, after a very brief illness.

Mr. Williamson was a well known citizen of the old district of Kensington, having been born there in 1829, and where he resided all his life. He received his early education at the famous old Harrison school in that district, and was school mate with many of the now prominent men of Philadelphia.

After the war he became associated with his two younger brothers, John D., and William C. Williamson, and established the manufacturing of hoisting engines.

The success of the new firm was evident from the very first, and from a small beginning grew their present extensive plant, and their manufacturers now embrace all kinds and type of hoisting machines. They were the pioneers of steering engine manufacture in this country.

While not himself an engineer, his business qualities, in combination with the engineering abilities of his brother, soon enabled the firm to take first place in reputation as a business house, and throughout the country it has a standing second to none.

Mr. Williamson had a large circle of both business and social friends, who were indeed shocked at his sudden death, and who mourn the loss of a very dear friend, and to these and to his brothers and family we offer our heartfelt sympathy.

He leaves a widow, one daughter and two sons, the oldest of whom, George W. Williamson, takes an active interest in the management of the firm.

### CAPT. J. M. CLOSSEY.

The friends of Capt. J. M. Clossey, will be grieved to hear of his death, which occurred at his residence in Buffalo, Wednesday. Capt. Clossey had lived in that city for a number of years, and worked himself up to the position of lake captain. He had sailed on many a vessel in his day, and stood in high with his superior officers. Capt. Clossey had command of the Nyack when she ran in the Lake Superior trade. He was master of the steamers New York and Rochester of the Union Steamboat Co., several years ago. and last fall sailed the steamer Owego. He was appointed last month to sail the Rochester, of the same line.

## ARENA FOR APRIL.

In the April number of the Arena, Justice Walter Clark, LL. D., continues his illustrated description of Mexico in midwinter. The editor, B. O. Flower, writes at length on "The Educational Value of Instructive and Artistic Entertainments, which appeal to the non-theatre going public," illustrated with several plates showing various poses of the Grecian Art Tableau Company. J. Heber Smith begins a series of articles on "Man in his Relation to the Solar System." Prof. John Clark Ridpath, LL. D., treats of "Limitation as a Remedy," in connection with the growing economic evils. Other valuable numbers on scientific, social, literary and occult subjects complete the work.

## COAL SHIPMENTS FOR 1895.

Harbor statistics recently compiled at lake ports show the total lake soft coal shipment were 3,397,065 tons. Of this amount the Pittsburg district shipped 2,035,130; Ohio, 1,122,868; and the West Virginia mines 239,067.

B. M. Myers, of Chicago, wants to sell the twin-screw steamers Romeo and Juliet, each with capacity for 125 passengers. George M. Black, of Detroit, has for sale the steam yacht Idler. See their advertisments.

A number of our subscribers have already directed that their addresses be changed, upon the opening of navigation, so the RECORD will be sent to them in care of the vessal on which they will be engaged, via the DETROIT RIVER MARINE POSTOFFICE. This river service will be continued this season, and made even more efficient than last year, and we call the attention of our subscribers to this arrangement as according a certain and reasonably prompt delivery of the RECORD, week by week, to those engaged in the traffic up and down the lakes.

### THE "PROVIDENCE" PATENT CAPSTANS.

The capstans shown below are among the increasing list of articles of American manufacture which have forced their way on their merits into general adoption in Great Britain and other foreign countries. They were patented Oct. 19, 1886, and Nov. 12, 1889. That this design should have attracted the attention and commanded the admiration of the British ship owners is not of itself at all remarkable, as, like the other machinery put upon the market by the same company, it has attained instant and lasting popularity wherever it has been known. Knowing the reputation that the American Ship Windlass Company has gained and maintained through forty years experience in their special line of business, we should not have been surprised to hear that the manifest merits of their capstans, their simplicity of construction, ease of manipulation, strength and reliability had broken down British prejudice, and won over the ship owners and captains to call for "Providence" machines and to insist upon having them.

More remarkable, however, is the information that this change in the temper of the British nautical public has been brought about not alone by merit but by a regard for economy, and this not only in the long run but on first cost. The enterprising Providence firm are underselling the foreign capstan manufacturers right in their own cities, and at the same prices that the Providence" machines can be bought for in America.
to this is added the fact of their durability and freedom from repairs. it will be seen that the American Ship Windlass Company's capstans are the best and cheapest in the world.

This capstan by the test of long and severe service has been found perfectly adapted to the work for which it is designed. The gears are large and strong, the studs and shaft are of steel, and the shaft has no shoulders to weaken it, being the same size its entire length. It can easily be taken apart for cleaning or repairs and put together again by any laborer, and is readily oiled from the outside. All parts are made to gauge and templet, insuring a smooth running capstan, with gears working to best advantage, exactly on the pitch line, thus reducing the friction to a minimum. Duplicate parts can be furnished any time at an hour's notice.

The large numbers of these capstans which are sold annually, and the steady and increasing demand, have enabled the company to fit up with expensive gauges and special machinery to manufacture in large quantities, and to take every advantage in economical production. These capstans are carried in stock by numerous agents scattered all over this country, and in Canada, England, Scotland, and Wales and other foreign countries. The change from speed to power in the bar capstan is made by simply reversing the direction of motion of the bars. A double set of safety pawls is provided, inside and outside, so that if either should give way there is still no danger to the men on the bars. By throwing a pawl tripper the capstan barrel may be rotated in the reverse direction.

The utmost care is used in the manufacture of these capstans both in respect to material and workmanship, and the fact should be considered that loss of life and property is sometimes occasioned by the use of weak or defective capstans of cheaper and less reliable makes.

These capstans are employed on most of the vessels of the U. S. Navy, on government and private dry docks, and for a large variety of uses. They are built to operate with cranks as well as bars, and hundreds of steam capstans are furnished annually for various uses. They are also employed in connection with electric motors and with hydraulic motors, several of the latter having been installed lately at the St. Mary's Falls Canal and at Cascade Locks, Ore.

Anyone interested is invited to visit the works, near Red Bridge, Providence, R. I., and see for himself the capstan taken apart, and examine the design, workmanship and material of any of the "Providence" capstans.

### NORTH AMERICAN REVIEW.

The North American Review for March opens with an important paper on "America's Interest in Eastern Asia," by Hon. John Barrett, U. S. Minister to Siam. Mr. George Horton, American consul at Athens, discusses the forthcoming "Revival of the Olympian Games." Charles Dudley Warner presents an admirable article upon "Our Foreign Trade and our Consular Service." "Free Silver and the Savings Banks" is the topic of papers by J. P. Townsend and C. H. Smith, presidents of savings banks in New York and Denver respectively. "Congress and its Critics" forms the title of a timely symposium by Senator Hansborough and several Representatives. The Excise Question forms the theme of two contributions by Hon. Warner Miller and Bishop Doane. Another attractive feature is the third installment of "The Future Life and the Condition of Man Therein," by Rt. Hon. W. E. Gladstone.

### MANITOWOC STEAM BOILER WORKS.

Among the industries that cater to marine trade on Lake Michigan territory the Manitowoc Steam Boiler Works, which opened for business in 1890 in a small way, has wonderfully increased its product. Its present quarters are 150 by 250 feet in size; it gives employment to about fifty men, and its output is by no means confined to marine or repair work. Although during the

GENERAL MANAGER HESS.

past six years the bulk af their work has been in the steamboat line, they are now turning their attention to the manufacture of pulp digestors for paper mills, and have only recently completed one for the Badger Paper Mills, of Kaukauna, Wis., which, by the way, is the first one ever constructed in the West. Since its erection it has given complete satisfaction, and Mr. William J. Hess, the bright and active president and manager of the works, is promised more orders of a similar character.

Mr. Hess has been a thoroughly practical boiler maker for twenty-three years, and is credited with being one of the foremost of skilled workmen in the country today. The growth of this enterprise is wholly due to the untiring energy of its founder. Nothing but the most accurate work either in the building or repairing of boilers will satisfy Mr. Hess, a rule which has given him the confidence of his many patrons of the past. A noticeable feature in connection with these works is the bright little office, which is separated from the dirt and noise that pertains to the trade. The writer, when calling on boiler men has often wondered why so many put up with a corner of the main shop for office purposes; a place in which, in most cases, one can scarcely "hear himself think." B.

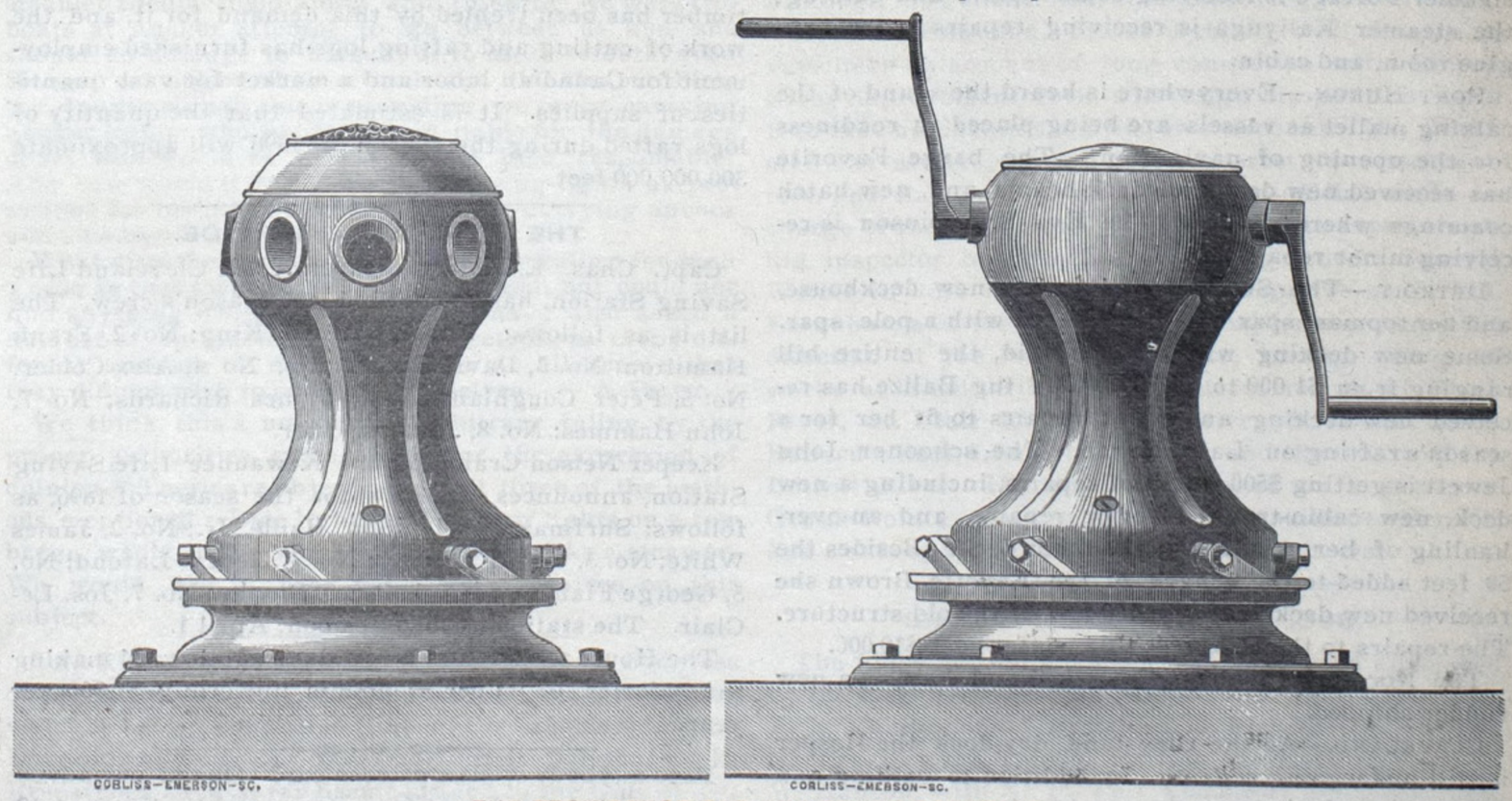
### APRIL CENTURY.

The Century plays two of its best cards in the April number, the frontispiece bring a beautiful engraving by Cole after George De Forest Brush's painting entitled "Mother and Child," and Mr. Castaigne furnishing the illustrations for a timely article by Prof. Allan Marquand, of Princeton, on "The Old Olympic Games," apropos of the revival of the Olympic festival at Athens. Prof. Sloane's Napoleon is particularly rich in illustrations. He treats of Napoleon as the assailant of nationality, of the Spanish campaign, and of the rise of Germany under the lead of Prussia. A notable article by Victor Louis Mason, an attache of the War Department, is entitled "Four Lincoln Conspiracies," and makes record of the three attempts to murder and one to kidnap, and includes new particulars of the flight and capture of the assassin. The illustrations are chiefly from archives of the War Department. Mr. D. P. B. Conklin contributes an article on "Japanese War Posters," with four illustrations. Mrs. Schuyler Van Rensselaer, author of "English Cathedrals," contributes a paper on "The Churches of Perigueux and Angouleme," with illustrations by Joseph Pennell, and the series of stories and sketches by the painter Vibert comes to a conclusion with three diverting examples.

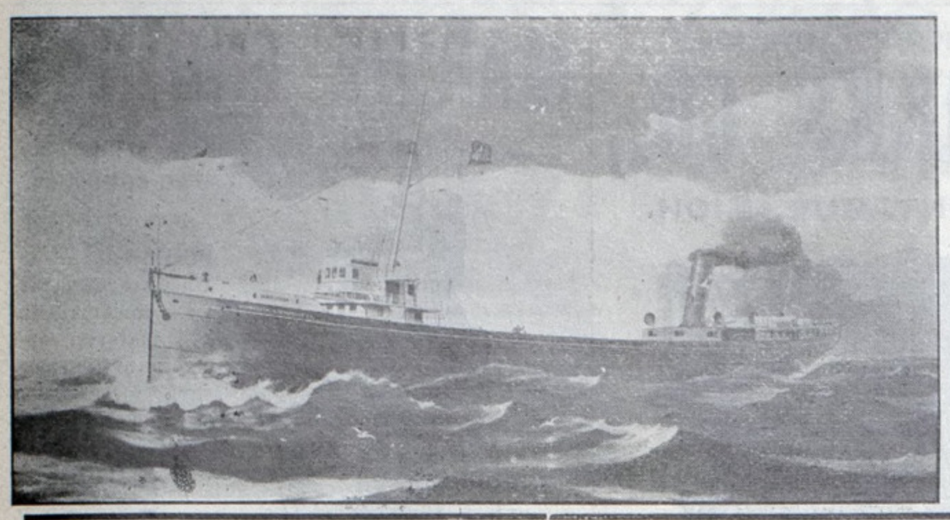
### LIVING TOPICS MAGAZINE.

A really unique publication, of rare interest and value to all intelligent readers, as a free sample copy which the publisher offers will quickly convince you. It deals only with such facts in current events and the world's progress in all departments of knowledge as one would expect to find recorded in a first-class cyclopedia were it up to date—which no cyclopedia is or possibly can be, because of its magnitude and cost; and yet the average reader inquires more concerning things of the past three years than concerning the preceding three centuries. Topics are treated in alphabetical order, and as often as the alphabet is covered a new series will begin and the same course be resumed. The first series will be completed within the present year—approximately 1,000 pages, all for the surprisingly low price of $1.00. John B. Alden, publisher, New York.

Catalogue No. 10, just issued by Page Bros. & Co., is an art book of a rich type—thirty-six handsome lithograph plates, each the size of a page of THE RECORD, on which are shown some 200 or more specimens of marine light fixtures of all descriptions, both for oil and electricity, including side light and mast head lanterns. A complete price list is sent with the book.




THE PROVIDENCE BAR AND CRANK CAPSTANS.



# GRAHAM'S

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No interference from Passenger or Car Ferry Lines.
Full supply of BEST STEAM COAL always on hand.
Wide stretch of river and plenty of water at dock. POCKETS and CHUTES arranged for various types of vessels, allowing QUICK DISPATCH day or night.

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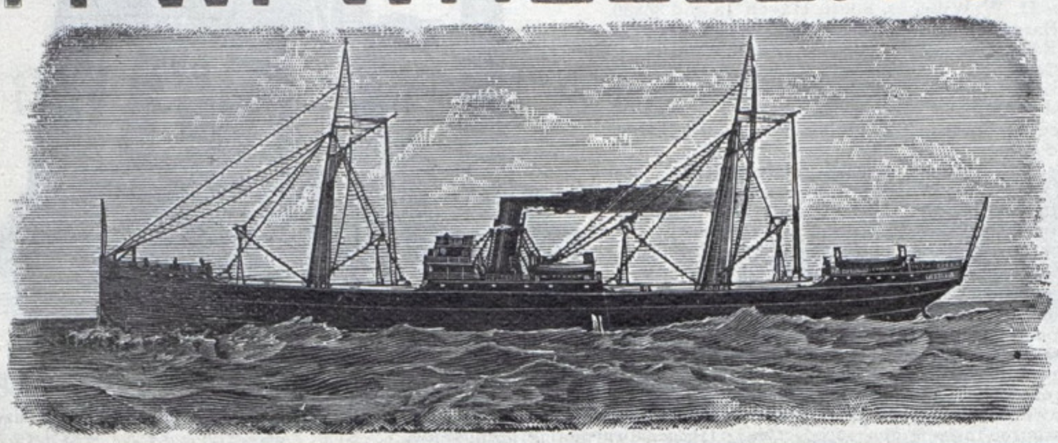

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*DETROIT, MICH.*

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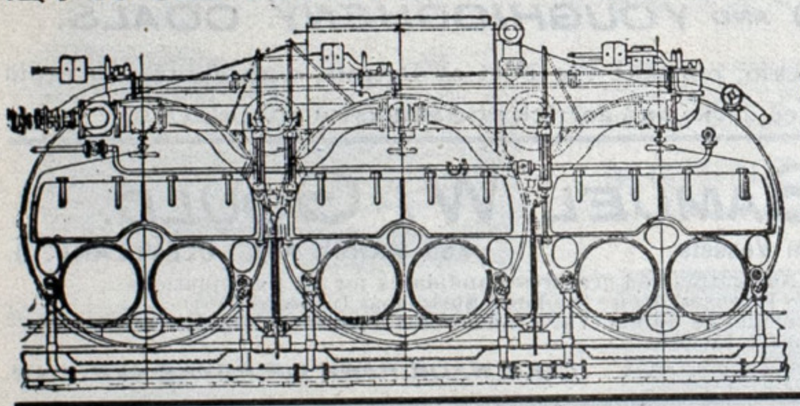

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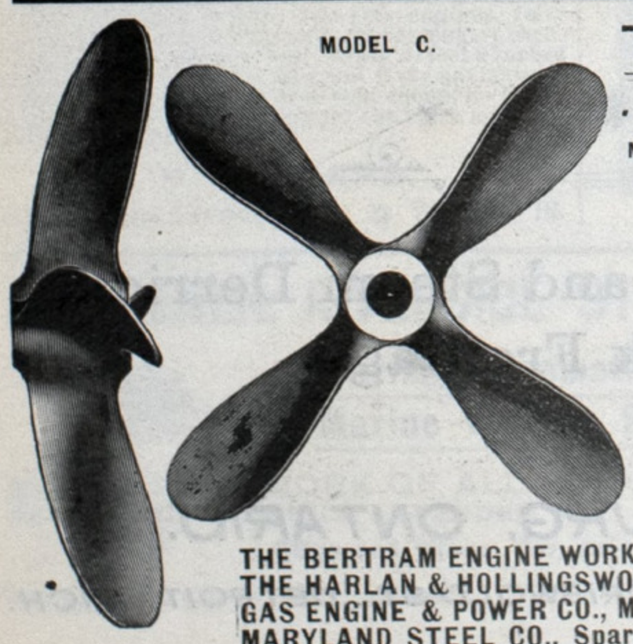

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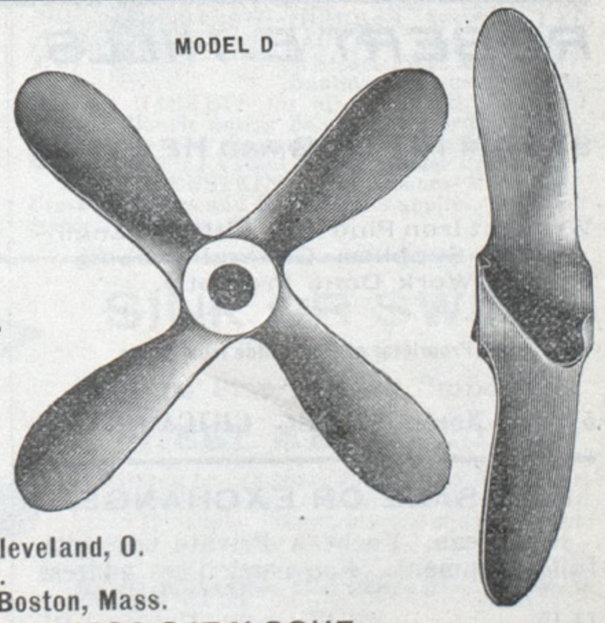

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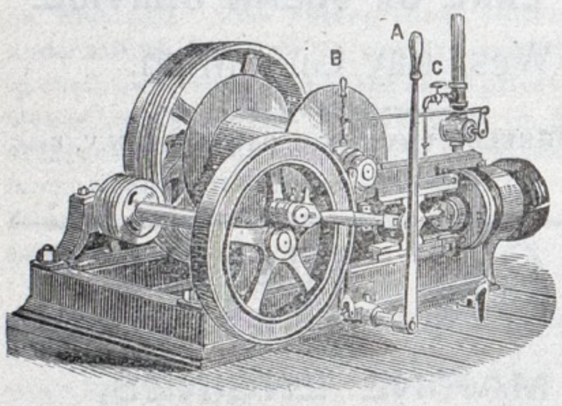


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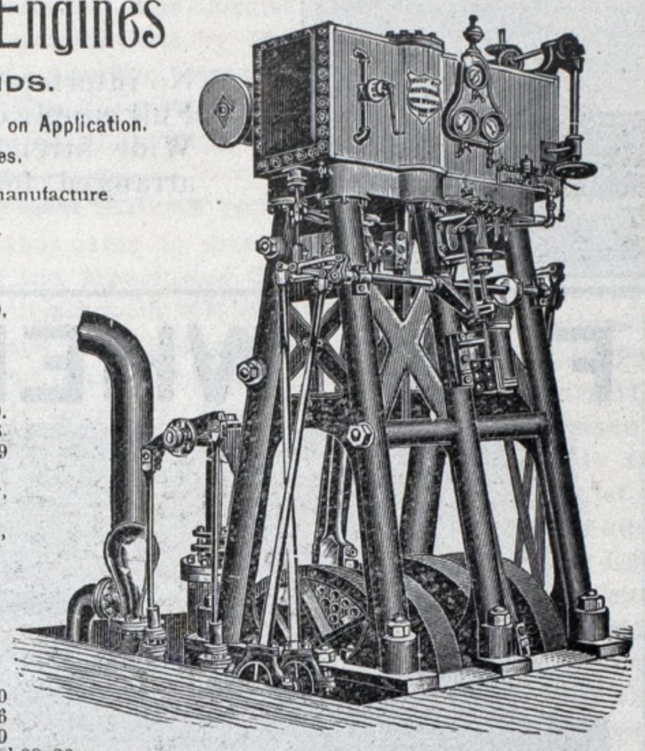

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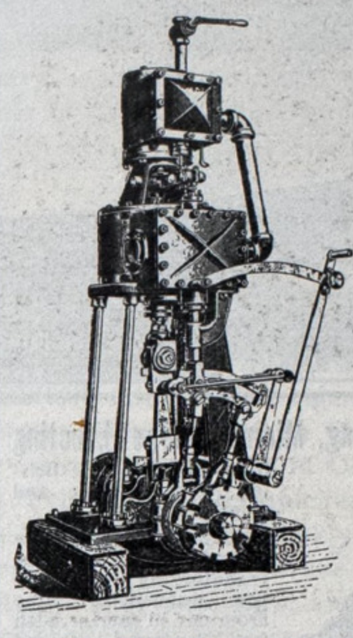

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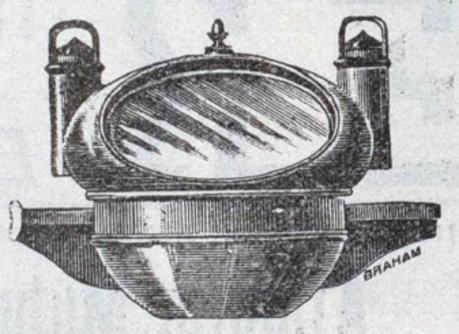


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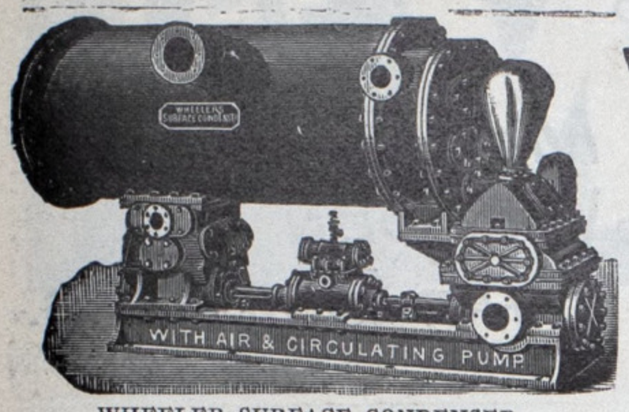


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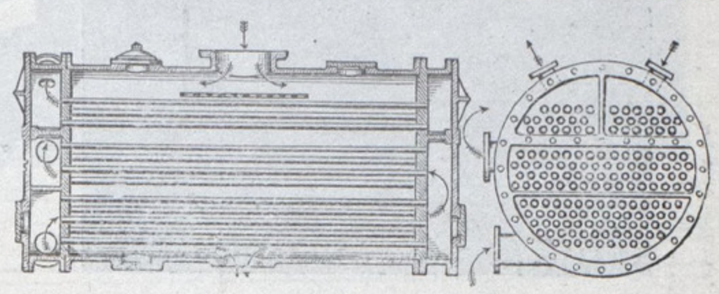

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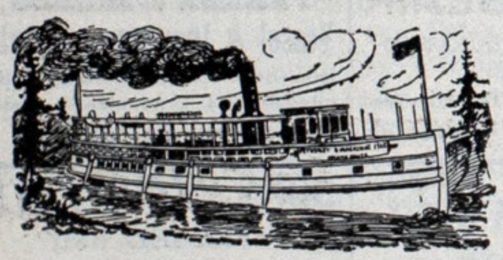

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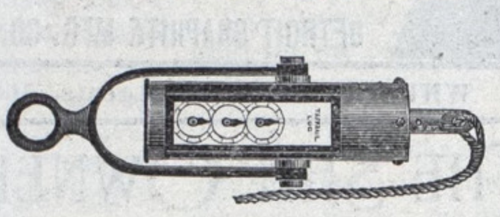

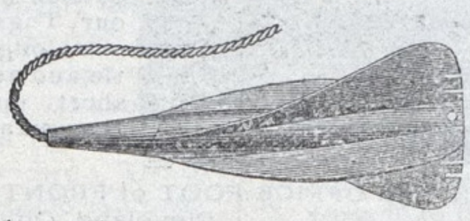

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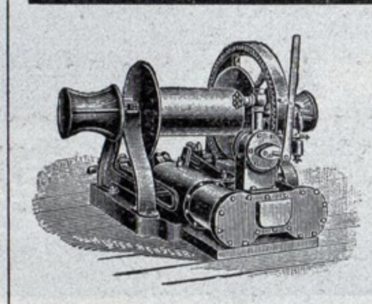

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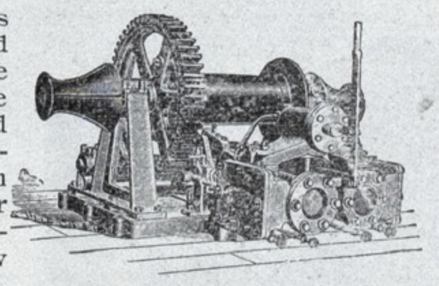

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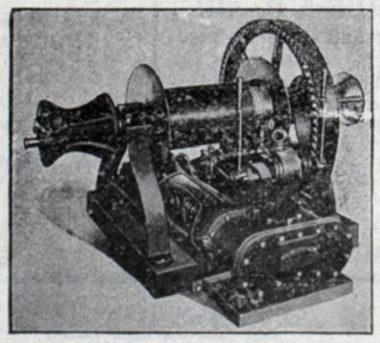

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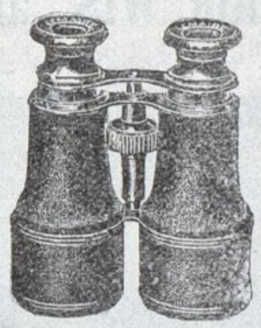

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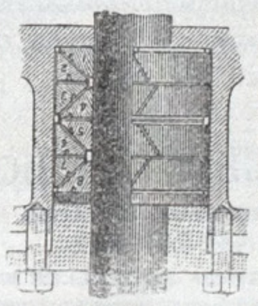

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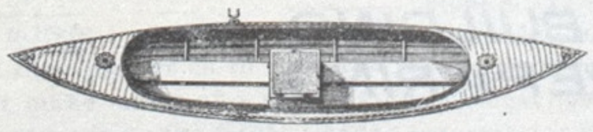

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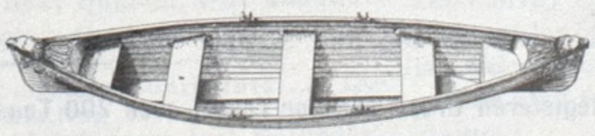

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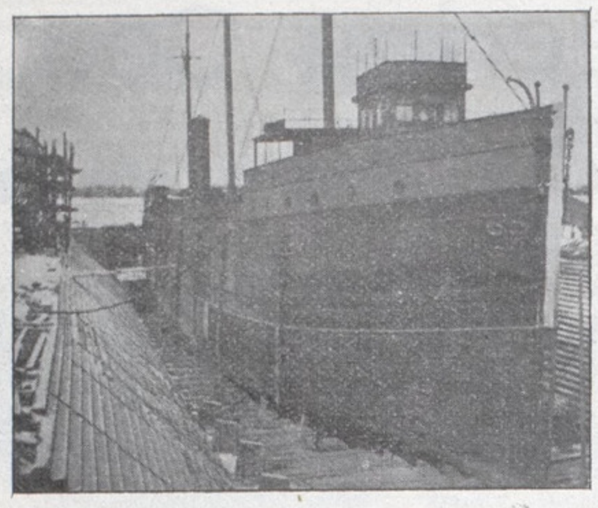

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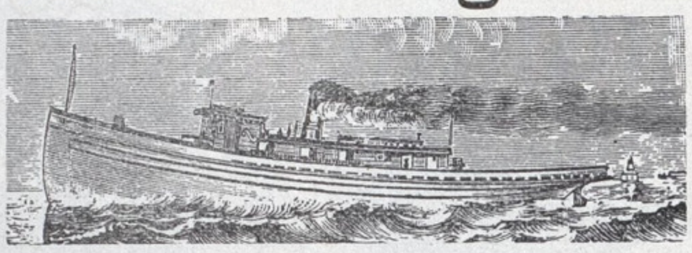

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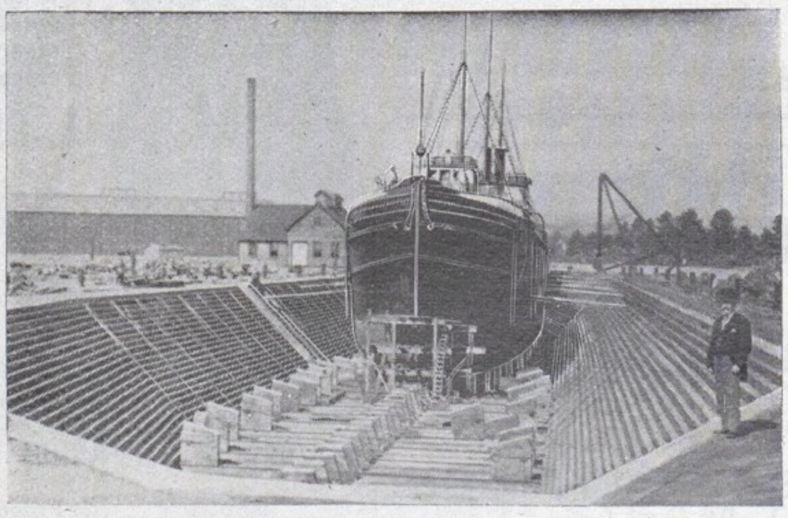

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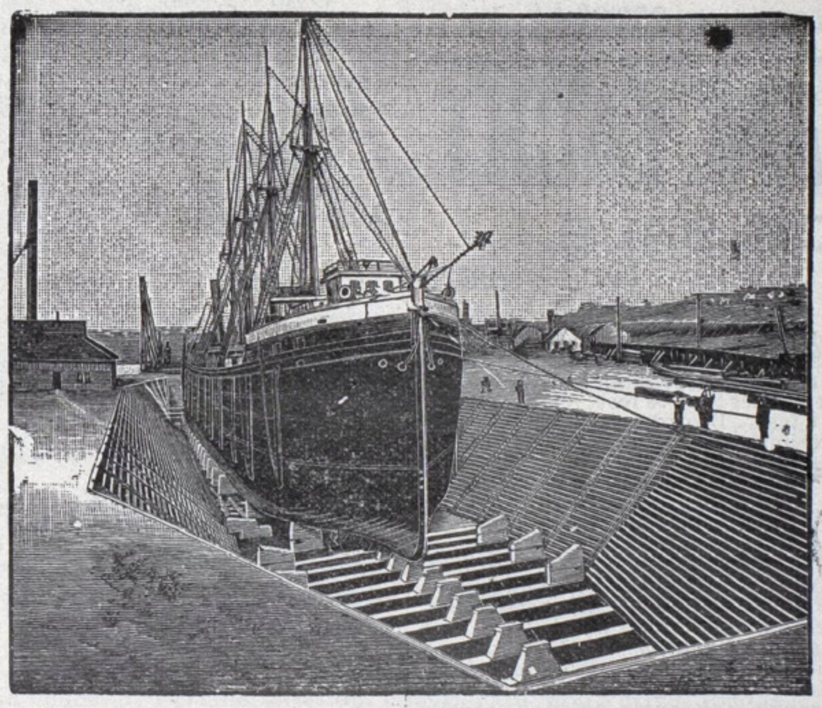

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